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ABSTRACT

This report provides state policymakers with a review of current issues and challenges in the professional development of teachers. The changing role of states in professional development is examined, and it is argued that while state involvement in professional development programs has increased, inadequate attention is being paid to the quality and content of these programs. Systemic reform is then discussed, including movements to place more responsibility for curriculum, assessment, outreach, and collaboration on teachers. The purposes of professional development are explored, including the balance between teachers' desires to pursue their own professional interests and the priorities of individual schools and school systems. Current systems of professional development are seen as disconnected from classroom practice and lacking in intensity and followup. Cost benefit issues are also addressed. A set of principles and standards for professional development is presented in order to stimulate dialogue in state and district school systems. A variety of challenges in professional development are then discussed, including questions of who sets priorities, how public support for increased investment can be secured, and how to convince both teachers and parents that time must be spent outside the classroom to improve teacher competencies. Major state policy instruments are discussed, and a framework is provided for conducting reviews of state policies in this field. Promising alternative models of professional development are examined, and specific suggestions are provided for state leaders interested in improving the quality and effectiveness of teachers in their states. (Contains 70 references.) (PB)

NATIONAL GOVERNORS ASSOCIATION

Transforming Professional Development for Teachers

A Guide for State Policymakers

CAPACITY for change

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NATIONAL GOVERNORS ASSOCIATION

Education Policy Studies

Center for Policy Research

Transforming Professional Development for Teachers: A Guide for State Policymakers

by Thomas C. Corcoran

Since their initial meeting in 1908 to discuss interstate water problems, the Governors have worked through the National Governors' Association to deal collectively with issues of public policy and governance. The association's ongoing mission is to support the work of the Governors by providing a bipartisan forum to help shape and implement national policy and to solve state problems.

The members of the National Governors' Association are the Governors of the fifty states, the territories of American Samoa, Guam, and the Virgin Islands, and the commonwealths of the Northern Mariana Islands and Puerto Rico. The association has a nine-member Executive Committee, a Task Force on State Management, and three standing committees—on Economic Development and Commerce, Human Resources, and Natural Resources. Through NGA's committees, the Governors examine and develop policy and address key state and national issues. Special task forces often are created to focus gubernatorial attention on federal legislation or on state-level issues.

The association works closely with the administration and Congress on state-federal policy issues through its offices in the Hall of the States in Washington, D.C. The association serves as a vehicle for sharing knowledge of innovative programs among the states and provides technical assistance and consultant services to Governors on a wide range of management and policy issues.

The Center for Policy Research is the research and development arm of NGA. The center is a vehicle for sharing knowledge about innovative state activities, exploring the impact of federal initiatives on state government, and providing technical assistance to states. The center works in a number of policy fields, including agriculture and rural development, economic development, education, energy and environment, health, information management, social services, trade, training and employment, and transportation. The priorities for the association's research are set by the Governors.

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Contents

v Acknowledgements

vi Executive Summary

CHAPTER 1 1 Introduction
2 *The Changing Role of States in Professional Development*
2 *National Governors' Association Support for State Restructuring of Professional Development*

CHAPTER 2 4 Systemic Reform and Professional Development
5 *Systemic Reform and Standards*
6 *Systemic Reform and the Practice of Teaching*
7 *School Restructuring and Teaching*
7 *Implications of Reform for Professional Development*

CHAPTER 3 9 The Purposes of Professional Development
10 *Balancing Training, Collegial Support, and Subject-Matter Knowledge*
11 *Balancing School and Teacher Interests*

CHAPTER 4 14 The Current System of Professional Development
15 *The Impact of Current Professional Development*
17 *Expenditures on Professional Development*

CHAPTER 5 21 Guiding Principles for Professional Development

CHAPTER 6 23 Challenges in Professional Development
23 *Time*
23 *Funding*
24 *Setting Priorities*
25 *Teacher Attitudes*
26 *Incentives*
27 *Public Support*

CHAPTER 7 29 State Policies and Professional Development
29 *The Conventional Wisdom*
30 *A Framework for Analysis of Policy Options*
32 *State Policies and Professional Development*
35 *Effects of Other State Policies*
35 *A Framework for Evaluating Professional Development Policies and Programs*

CHAPTER 8 38 Some Promising Alternatives
38 *Joint Work and Job Enrichment*
39 *Teacher Networks and Collaboratives*
40 *Collaborations Between Schools and Colleges*
41 *Professional Development Schools*
42 *National Board Certification*
42 *Teachers as Institutional Researchers*
43 *Uses of Technology*

CHAPTER 9 44 Implications for States
45 *Increasing Awareness Among Education Leaders*
45 *Increasing Public Support and Awareness*
45 *Reviewing Policies and Practice*
45 *Setting Standards and Priorities*
46 *Providing More Time*
47 *Strengthening Teacher Roles*
47 *Supporting Local Adoption or Demonstrations of Promising Approaches*
48 *Rethinking Incentives*

CHAPTER 10 50 The Challenge of Going to Scale

53 Endnotes

59 Bibliography

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The report was written by Thomas B. Corcoran, senior research fellow, The Consortium for Policy Research in Education (CPRE), Rutgers, The State University of New Jersey. Established in 1985 through a five-year grant from the U.S. Department of Education's Office of Educational Research and Improvement, CPRE unites five of the nation's largest research institutions in a venture to improve student learning and performance through research on education policy and finance. The members of CPRE are Rutgers, The State University of New Jersey; the University of Wisconsin-Madison; Harvard University; Stanford University; and the University of Michigan.

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Executive Summary

Across the nation, education professionals and state and local policymakers are working together to set standards for the public schools, develop more coherent policies, design new incentives to stimulate innovation and improved performance, give school staff and parents more responsibility and authority for decisionmaking, and strengthen collaboration among institutions involved in education. It is now widely recognized that the success of these school reform initiatives depends in large part on the quality and accessibility of professional development for teachers. Yet what is not clear is the kind of professional development that is needed and how it may best be provided.

There is widespread recognition among teachers and researchers that the current system of professional development is fragmented, ineffectual, and inefficient. Unless professional development is redefined and restructured, the opportunities provided for teacher learning are not likely to equip teachers with the knowledge and skills they require to implement the ambitious reform agenda. Policymakers must put the issue of professional development for teachers at the top of their agendas.

This report reviews what is known about these issues and offers some advice to state policymakers on how to provide the support teachers need. It addresses questions such as the following. What should be the priorities for professional development? What is wrong with the current arrangements for professional development? Is more money needed, or can existing resources be reallocated to do the job? Do standards for professional development need to be set? What approaches to professional development offer the most promise? And, finally, what can state leaders do to see that teachers have access to what they need to implement reforms in teaching and learning?

The ten chapters cover the following.

Chapter 1. The Changing Role of States in Professional Development. Historically, states have not played a lead role in shaping professional development for teachers, though some state policies such as recertification requirements have significant influence on the amount and character of professional development activity. This situation is changing as states begin to provide funding for professional development or increase the time that must be set aside for it. However, inadequate attention is being given to the quality or content of professional development programs. States will need to assume more leadership in this area as reform initiatives progress.

Chapter 2. Systemic Reform and Professional Development. Many reformers believe that teachers must improve their subject-matter knowledge, pedagogical skills, and understanding of the cultural and psychological factors affecting learning if they are to be successful in helping all students meet high standards. They want teachers to place more emphasis on student understanding of key concepts in the disciplines, on problemsolving, and on the integration and application of knowledge. Teachers are also being asked to assume more responsibility for curriculum, assessment, outreach, collaboration with other agencies, and school governance. The implications of these changing expectations for professional development are examined.

Chapter 3. The Purposes of Professional Development. The primary purpose of professional development is to improve teaching and learning. However, professional development resources are also often used by teachers to pursue personal intellectual interests, satisfy recertification requirements, or acquire credentials for other positions. This chapter addresses the difficult task of balancing the

interests of individual teachers and the priorities of schools.

Chapter 4. The Current System of Professional Development. The variation in district professional development policies and practices is examined in this chapter. Conventional professional development tends to have weak effects on classroom practice because it is disconnected from practice and lacks intensity and followup. The question of costs is also examined. It is clear that states and districts are spending far more than they know, but they are spending resources in ineffective ways for unclear purposes.

Chapter 5. Guiding Principles for Professional Development. A number of experts and organizations have suggested standards for professional development, and there is consensus about the principles that should guide policy and practice. A set of principles is presented in this chapter in order to stimulate discussions about standards in states and districts.

Chapter 6. Challenges in Professional Development. The challenges facing policymakers who would like to reform professional development for teachers are also addressed. Time is the greatest barrier. It is difficult to convince teachers to spend extra time outside of the classroom on professional development. It is also difficult to convince parents that teachers need time away from the classroom. Teachers must also believe that professional development is needed and can be valuable, in order for them to become actively engaged. Incentives must be developed to encourage teachers and schools to change their practices. Questions about who sets priorities and who decides what constitutes good professional development need to be resolved. Securing public support for increased investment in professional development, including reallocating existing funds, is a challenge.

Chapter 7. State Policies and Professional Development. State policies can have significant effects on the quantity and quality of professional development activities. However, there is little empirical evidence about the effects of specific state policies on professional development. The major policy instruments and their use with respect to professional development are discussed, and a framework for conducting a review of state policies and their influence on professional development is presented.

Chapter 8. Some Promising Alternatives. Some "promising" approaches to professional development are described briefly. These include encouraging cooperative efforts by teachers such as team teaching, teacher networks and collaboratives, and professional development schools; promoting job enrichment such as working as assessors or mentors; pursuing the National Board for Professional Teaching Standards' certification process; encouraging teachers to undertake research; and using technology creatively. The barriers to implementing and expanding these new forms of professional development are discussed.

Chapter 9. Implications for States. This chapter discusses what state leaders can do to improve the quality and effectiveness of professional development for teachers. A number of specific steps are outlined that could help set a new direction and build momentum for improving professional development.

Chapter 10. The Challenge of Going to Scale. The last chapter raises a difficult problem: how is support best provided for such broad-scale changes by so many teachers? The answer is not totally clear, but this report argues that adopting a new mindset and new approaches to professional development are the first steps. Going to scale requires a long-term commitment to reform based on a coherent set of principles and policies. It requires a willingness to abandon some old assumptions and biases about teachers and teaching as well as a willingness to experiment with new ways of spreading knowledge. Although there are a great number of barriers to overcome, there is a clear need to provide teachers with richer and more rewarding opportunities for growth.

1 Introduction

In the last two decades, the work of teachers in the public schools has undergone dramatic changes, and the pace of change appears to be accelerating. Teaching is becoming an even more complex and difficult task and, at the same time, public expectations about student performance are rising. Consider some of the ways in which the conditions of teaching are changing.

- *Public expectations.* Teachers are being asked to help all students, not just the academically motivated, reach high standards. Accountability procedures, media coverage, and rising public expectations are directing increased attention to student results.
- *Academic standards.* Teachers are expected to help students acquire deep understanding of content in the core subjects and to integrate and apply that knowledge to real problems.
- *Concepts of good practice.* The focus of instruction is shifting from basic skills to thinking skills. Hands-on instruction, cooperative learning, and interdisciplinary work are becoming the norms of good teaching.
- *Student-teacher relationships.* Some students and parents show little respect for teachers' authority and expertise, discipline problems are worsening, and school violence is rising. Yet teachers are being asked to accept more responsibility for the well-being of their students and to help them become productive citizens.
- *The classroom population.* Students are more diverse culturally and linguistically. Students with special learning needs are being placed in regular classrooms. Tracking is being reduced, making classes more heterogeneous.
- *Assessment.* Teachers are being asked to develop expertise as assessors, to use portfolios and performance assessments, and to prepare their students for more complex assessment tasks.
- *Technology.* Teachers are expected to understand and use computers and electronic communication networks and to help students use them as tools of learning.
- *School governance.* Teachers are assuming more responsibility for decisionmaking and program development, and they are expected to work collaboratively with administrators, parents, and community members in new forms of school governance.
- *Social service centers.* Teachers are expected to work closely with social workers, counselors, and other specialists to help children succeed in school.

Educators are being asked to master new skills, take on new responsibilities, and change their practice. To meet these challenges, teachers not only need to deepen and extend their knowledge of subject matter, they need time and opportunity to master, practice, and reflect on new approaches to instruction and to prepare for the new responsibilities being thrust upon them. They must learn how to function as professionals within learning communities and to work together with colleagues to improve their practice and help their students meet high standards. All of these activities fall under the general heading of professional development.*

*The terms "professional development," "staff development," and "in-service education" are often used interchangeably to refer to activities in which teachers learn their craft. However, there are subtle nuances in their meanings with regard to the content, form, locus, initiation, and control of the activity. In-service education and staff development are used here to refer to those formal opportunities for learning provided by school districts and other agencies that are part of the public education system. Professional development is taken to be a broader, more inclusive term referring to the full range of activities that affect how teachers learn how to teach and how they mature intellectually and professionally.

The Changing Role of States in Professional Development

To help the Governors shape education policies that will enable the states to reach the National Education Goals, the National Governors' Association (NGA) has been providing them with information about policy issues related to school reform.[1] One of these issues is professional development.[2] Although historically the states have not played lead roles in this area, state policies do influence the quantity and character of professional development activity. For example, almost all states require teachers to participate in further education to maintain their certification.[3] A few have designated portions of state aid for professional development. Many have created regional agencies to offer in-service programs for teachers. Some require school districts to plan and provide programs for teachers. Although state policies have affected the amount of professional development that is offered to or required for teachers, state policymakers have seldom attended to the nature or quality of professional development. They usually have focused on other aspects of teacher policy, such as preparation, assessment and licensing, supply, recruitment of minority teachers, and recertification requirements, leaving matters of the character and quality of professional development largely to the discretion of local boards of education and district administrators.

This laissez-faire approach to professional development must end. There is widespread recognition among teachers and researchers that the current system of professional development is ineffectual and inefficient. State and local policymakers are beginning to recognize that the needs are too urgent and the resources too scarce to continue to ignore the ineffectiveness of investments in professional development. There is increasing recognition that a coherent approach to teacher development is needed that connects and aligns teacher recruitment, pre-service education, standards for licensure and accreditation, roles and responsibilities, professional development, supervision, and pay and benefits.[4] Professional development must be approached from a perspective of an integrated policy framework for teacher development and must be linked to the goals of state and local reform initiatives.

New approaches to professional development are needed to support the design, development, and implementation of more rigorous standards, new curriculum frameworks, authentic assessment, and changes in school organization and governance. The implementation of systemic reform requires at least two fundamental capacities:

- a teaching force prepared to help students reach high standards of achievement; and
- a system of professional development that helps teachers learn, develop, use, and maintain the knowledge and skills required to meet this goal.

These critical issues of capacity are sometimes neglected by policymakers as they forge ahead with systemic initiatives. They should be working with educators to assess the adequacy of the professional development opportunities being provided for teachers and asking how they can ensure more focus, quality, continuity, and effectiveness. Policymakers who are committed to improving student performance must recognize the enormity of the challenges confronting teachers and see that they receive the support needed to meet them.

National Governors' Association Support for State Restructuring of Professional Development

To encourage increased collaboration between state policymakers and educators and to help them review professional development policies and activities in their states and assess their needs, the National Governors' Association, with support from Carnegie Corporation of New York, made grants to three states: Colorado, Michigan, and Rhode Island. Teams of state policymakers and educators in these three states addressed basic questions such as the following.

- What are the purposes of professional development?

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- What opportunities are now provided for teachers, who receives them, and what are their effects on practice?
- What needs are being generated by the current reforms? Can they be met through the existing infrastructure for professional development?
- What is being spent on professional development? What additional resources, if any, might be needed?
- How can state policymakers improve the quality of professional development?
- What policy options or alternative strategies offer the most promise?

The primary purpose of this report is to assist state teams like those convened by NGA as they search for answers to such questions. The report examines the purposes of professional development, the demands being placed on teachers by systemic reform, current policies and practices in professional development, the characteristics of "good" professional development, some of the major barriers to reform, and options that might be considered by state policymakers.

It is important to note that this report addresses the professional development of teachers already employed in the public schools and does not address issues of pre-service education. Nor does it address the needs of school administrators or support staff such as counselors. The professional development provided for these school employees suffers from many of the same inadequacies as that provided for teachers and also is need of repair. Although much of the discussion presented here undoubtedly applies to these other educators, their needs, geographic distribution, and professional affiliations may argue for different approaches than those described in this report.

2 Systemic Reform and Professional Development

There is a growing consensus among state and federal policymakers, and among the scholars and analysts who advise them, that the best strategy for the reform of the nation's public schools is state-guided systemic reform, sometimes referred to as standards-driven reform. Systemic reform calls for the development and implementation of standards and for coherent education policies for curriculum, assessment, human resource development, and school management. This approach is being fostered by the Goals 2000 legislation, the National Science Foundation's State Systemic Initiative (SSI), and the standard-setting activities of numerous national professional organizations. It is also the strategy underlying reform initiatives in states as diverse as California, Connecticut, Delaware, Kentucky, Maine, South Carolina, and Vermont, and it is being partially implemented in many other states.

Supporters of systemic school reform believe that all children could meet higher academic standards than those currently in use if only they were asked to do so and if they were given adequate opportunity to learn the new content. They argue that the history of school reform demonstrates the futility of isolated state and federal policy initiatives such as raising graduation requirements or providing grants for school improvement. Policy initiatives such as these have not raised the academic performance of American students to levels that are internationally competitive, nor have they substantially reduced the gaps in achievement between the majority and minority populations in the United States.

In place of fragmented improvement efforts, systemic reform offers a comprehensive and long-term approach based on content and performance standards accepted by policymakers, practitioners, and the public. These standards are intended to stimulate and guide reforms in curriculum, pedagogy, assessment, and school organization. They are seen as the foundation for a coordinated and coherent set of policies cutting across agency boundaries and levels of government, producing greater focus on common goals, and leading to increased collaboration of public, private, and professional organizations.

Although the specifics of systemic reform vary somewhat from state to state, there appears to be general agreement on the core elements.[5] These include:

- the adoption of **ambitious goals** for student learning at the state and local levels;
- the establishment of more **challenging academic standards** for all students and the development of more rigorous curricula reflecting those standards;
- the development of **more coherent state and local policies** regarding finance, curriculum, assessment, teacher preparation and professional development, college admissions, and social service delivery in support of the goals and standards;
- a shift to **student-centered teaching** where greater emphasis is placed on thinking, analysis, problemsolving, and the integration and application of knowledge;
- the development of **performance measures** to assess students' understanding of essential content, their ability to apply it to solve problems, and their capacity to integrate knowledge across the disciplines;
- mechanisms such as school report cards, rewards and sanctions, and school quality reviews to generate **stronger incentives to improve performance**;
- **decentralization of decisionmaking** to increase motivation and commitment at the

school level and generate more creative approaches to solving problems; and

- increased **collaboration** among the agencies, institutions, and interests that affect the public schools and the children and families they serve.

This is an ambitious agenda. Its proponents aspire to simultaneously make public schools more equitable and more internationally competitive. They believe that these reforms will reduce disparities in achievement associated with race, ethnicity, and gender, while raising the overall level of student achievement. To accomplish these goals, they propose to fundamentally alter the nature of teaching and learning. Several aspects of systemic reform—the standards, the new pedagogy, and changes in governance—hold profound implications for teachers and for their professional development.

Systemic Reform and Standards

Much of the energy for the current education reform movement comes from national, state, and local discussions about setting higher standards for education. In the past few years, these discussions have focused on the role national and state standards could play as incentives or guides for states and school districts to develop "world-class" education. However, there is no consensus about what standards are needed or who should set them. Several categories of standards have been proposed. There are simultaneous efforts underway to develop higher standards for curriculum (content standards), for students (performance standards), for teachers (certification standards), and for schools and school districts (delivery or opportunity-to-learn standards and school review standards).

In each case, multiple initiatives are underway simultaneously at different levels of the system: national organizations, states, and school districts are all working on standards. With federal support, national professional and subject-matter organizations are following the lead of the National Council of Teachers of Mathematics (NCTM), which set the pace in 1989 by adopting standards for what students should know and be able to do in mathematics. There are standard-setting activities underway in the arts, civics, English, foreign language, geography, history, and science. Some of this work has already been completed, and the rest of it is expected to be completed in the next two or three years. Meanwhile, more than forty states have been moving forward on their own to set content and performance standards. With Goals 2000, Congress has lent federal support to these state initiatives.

These national and state standard-setting initiatives are not well-coordinated, and therefore they are unlikely to produce a coherent set of standards in the short run. Meanwhile, the multiple standards-setting activities are raising a host of potential problems for the states and for school districts, including the following.

- *Allocation of instructional time.* Each of the national organizations developing content standards is trying to be as comprehensive as possible in order to make a maximum claim on the school curriculum and on instructional time for their discipline.
- *Integration of content.* The standards being set for different subjects at the same grade levels do not always mesh well.
- *Inadequate resources.* Some of the emerging standards require resources currently not available in most schools. For example, draft standards for science call for facilities and equipment lacking in many schools and for the integration of the scientific disciplines even though most teachers have training in only one field of science.
- *Sequencing.* Some states and districts are adopting new content and performance standards prior to the completion of the work on national content standards. Some states are implementing new assessment procedures before new curriculum frameworks are developed. Similarly, national efforts to set new standards for teacher certification are running ahead of the development of national content standards.
- *Consistency.* The national and state standard-setting activities are not always

moving in the same direction. For example, Maine and Vermont are working on curricular frameworks based on generic skills that cut across the disciplines. Oregon and several other states are proposing differential curricula after the tenth grade. Yet most of the national organizations are developing K-12 content standards that are discipline-based.

- *Lack of broad-based public and professional involvement.* The time pressures placed on the standard-setting activities are limiting the amount of professional and public input into their development. Although NCTM took almost a decade to develop a consensus on its standards, other groups are trying to do it in a year or two. And national "consensus" may not be consistent with views within a state. States such as Colorado and Vermont have sought broad public input, but reformers in most other states have relied heavily on expert opinion and largely bypassed the public—and most teachers—in the process.

Some of these problems may just be transitional, though the transition may take several years. Change is always messy, and not everything can be done at once. Problems such as the lack of alignment of standards across the disciplines or poor sequencing of curricular frameworks and assessments within states can be expected to be resolved given time. Other problems regarding standards, such as debates arising from competing philosophies about what children should know and be able to do, may be more difficult to resolve because they may reflect deep differences in values and priorities.

These standard-setting activities have major implications for teachers and for teaching. Content standards will influence state curriculum frameworks and assessment programs and district curriculum policies, and they will shape professional norms about what should be taught. They will redefine what teachers need to know about the subject matter. State and local performance standards may have even more powerful effects on teaching if they are linked to sanctions for schools and teachers whose students perform below expectations and rewards for those who do well. Even the proposed new standards for national certification of exemplary teachers under development by the National Board for Professional Teaching Standards (NBPTS) offer teachers a mixed blessing of increased rewards and new opportunities on the one hand and more stress on the other. The stress will result from changes in the bases for achieving status and recognition in the teaching profession and from the failure of some to meet the new standards.

Clearly, the emerging national and state standards pose serious challenges to teachers. They will need to redesign curriculum. Many will need to rework their practice and master new content knowledge. These tasks are complicated by conflicts among the standards in different subject areas; pressures in some states to integrate the disciplines; time problems created by ambitious standards, all of which are claiming that less is more while asking teachers to do more than they now do; and the need to explain the changes to parents worried about their children's progress and college admissions. Sorting out these confusing, and sometimes contradictory, signals will require high levels of cooperation among teachers, parents, and policymakers. Teachers will not be able to do all of this unless considerable time and support are provided. This may require changes in school organization, work routines within schools, and the school calendar, as well as the development of new professional supports for teachers.

Systemic Reform and the Practice of Teaching

Another key component of the current reform agenda is the desire of many education leaders to shift from a behaviorist approach to teaching, in which students are relatively passive recipients of teacher-generated knowledge, to a "constructivist" approach, in which students are more actively engaged in their own learning. Constructivism is a theory that holds that students gain deeper understanding of key concepts and have better retention of knowledge when they are actively engaged in its construction, can weigh new information against their prior knowledge, and come to

new and integrated understandings. This process requires "hands-on" exploration of ideas and phenomena and the application of new "knowledge" to authentic problems.[6] The fundamental difference between the behaviorist and constructivist approaches to instruction is a shift in emphasis from memorizing facts to the use of experience to promote understanding and reasoning about important concepts.

Constructivism is not a new set of ideas. This approach to instruction is reflected in the whole-language movement, the standards developed by the National Council of Teachers of Mathematics, and the standards recently proposed for science by the American Association for the Advancement of Science and the National Academy of Science. The emphasis on the application of knowledge under authentic conditions also underlies the current interest in interdisciplinary instruction and the development of curriculum frameworks organized around "core" or generic skills rather than the disciplines.

Implementing this approach to instruction calls for a pedagogical revolution for which few teachers are prepared. They are being asked to teach in ways that most have never seen or experienced. A massive professional development effort is required to enhance teachers' knowledge of subject matter and enable them to use the new teaching strategies effectively. New curriculum frameworks delineating the guiding principles, central concepts, and strategies are needed to help teachers design appropriate learning opportunities. The constructivist approach also requires more time to cover less subject matter, so that agreement is needed about what is essential and what can be left out. New assessments must be developed to probe students' understanding of content and examine their ability to integrate knowledge and apply it to authentic problems.

School Restructuring and Teaching

Another critical element of systemic reform is a shift in decisionmaking authority from state agencies and district central offices to schools. School-based management is creating new roles for teachers as members of school governing boards and new relationships with their colleagues, school administrators, and parents. School-based management has been mandated in some states, Kentucky and Texas, for example, and is being encouraged in others such as California, Maine, and Washington. Hundreds of school systems across the country have adopted some form of school-based management, including large urban systems such as Chicago, Cincinnati, Denver, Detroit, Miami, and San Diego. Seven out of the eight largest systems in the country are implementing school-based management.[7]

School-based management makes new demands on teachers' time—an already precious commodity. Teachers are often expected to take the lead in curriculum, professional development, and mentoring. In some settings, they may be responsible for budgeting and hiring new personnel. If school-based management is to succeed, teachers must be prepared for the varied and complex roles they are being asked to play in restructured schools.[8]

Implications of Reform for Professional Development

New pedagogy and curriculum, new standards for student performance and assessments, new approaches to school governance, and new relationships among the institutions serving children and youth all hold enormous promise for improving education. But these reforms also pose tough challenges for teachers who are being asked to change their classroom practice, deepen their knowledge of content, and assume new roles and responsibilities—and to do all of it quickly. They need opportunities to acquire and practice the new knowledge and skills needed to implement these reforms.

Reformers are calling for increased investments in professional development and states such as Kentucky, Minnesota, and Missouri have dedicated new resources to this purpose. The need for professional development is gaining recognition, but state initiatives to

address the problem have typically taken the form of additional in-service days. As Judith Warren Little has persuasively argued, this strategy, and the narrow training model on which it is based, is unlikely to meet the needs of teachers, especially given the nature of the new demands being made of them.[9] Better professional development is needed, not just more of the same.

Do the states have the capacity to prepare teachers for the changes being sought in the public schools? In principle, the answer is yes, but many state policymakers have not yet perceived the magnitude or the nature of the problem and they have not organized to address it. The professional development resources in schools, districts, intermediate units, state agencies, and higher education are poorly coordinated, and they are not focused on the critical tasks of supporting reform. The rich talent pool of experienced teachers who could help their peers is seldom viewed as an important resource. One of the major challenges facing reformers and policymakers is the development of a new system of professional development to support educators as they seek to implement the new reform agenda.

3 The Purposes of Professional Development

This review of professional development policies and practices rests on the simple premise that the central purpose of publicly supported professional development for teachers should be the improvement of instruction and learning in the public schools. Other purposes may be served, but only if they are not in conflict with this fundamental purpose. For example, teachers often pursue advanced degrees at public expense. Coursework that advances their position on salary schedules may not always be directly related to their classroom responsibilities, but the investment may nevertheless be justified if there are good reasons for expecting long-term benefits for the schools. Similarly, district-sponsored professional development programs may address the personal needs of teachers, but these activities may have organizational value if they raise morale and productivity. Nevertheless the primary purpose of professional development is improving teaching and learning and this should always be kept clearly in mind. Ideally, decisions about professional development by state officials, school boards, district administrators, and individual teachers would be made with the intention of improving instruction and learning.

To understand the competing purposes served by professional development, it is useful to distinguish between those activities that primarily serve the interests of individual teachers and those that primarily serve the interests of schools or school districts. These two sets of interests can be, and often are, compatible, but there also can be tension between them. Determining what the relative influence of these different interests should be in setting the professional development agenda is one of the most difficult questions facing policymakers. Different answers to this question will produce different policies and quite different professional development activities.

A second useful distinction concerns the knowledge that should provide the core content for professional development. One view holds that knowledge about teaching emanating from studies conducted by university researchers should be the foundation for professional development. From this perspective there is—or should be—a scientific knowledge base about teaching. When this knowledge is transmitted to teachers, they should change their practice. Therefore, the mission of professional development should be training teachers to use the latest research-based techniques. From this perspective, professional development is simply a matter of designing effective mechanisms for technology transfer. In contrast, other scholars and many practitioners view teaching as more of a craft than a science. They contend that the most useful knowledge about its practice is derived from the experience of practitioners and that the contribution of research to practice is limited. Collegial exchanges and mentoring are seen as more important than research-based training because teachers need these opportunities to exchange craft knowledge and reflect on their practice. In this view, the most important elements of professional development are not technical and cannot be standardized. They should be embedded in the work of teaching and are necessarily school-based. Therefore, good professional development provides regular opportunities for interaction and cooperation among teachers and between teachers and scholars.

Yet a third view holds that subject-matter knowledge should receive more emphasis. Although it seems self-evident that knowing more about a subject should make it easier to teach it, content knowledge tends to receive less attention than pedagogy in state and local staff development programs. Those who advocate placing greater emphasis on teachers' sub-

ject-matter knowledge argue that it is required by the emerging content standards and that it will produce higher student performance. The level of teachers' subject-matter knowledge also is believed to be linked to their professional status, their involvement in their professional communities, and their capacity to contribute to sound policy decisions.[10] The most common approaches to increasing teachers' subject-matter knowledge are graduate courses at universities, summer institutes such as those supported by the National Science Foundation, and participation in subject-matter collaboratives or teacher networks (see Table 1).

All of the examples in Table 1 can have value under particular sets of circumstances, and they are often effectively combined. There are benefits to be derived from the pursuit of both individual and organizational interests. Similarly, technology transfer, collegial exchanges, and acquisition of increased subject-matter knowledge can all contribute to increased individual and organizational capacity. Developing the best combination of these alternative approaches requires clarity about purposes.

Balancing Training, Collegial Support, and Subject-Matter Knowledge

Conventional wisdom holds that professional development consists of formal education activities, such as workshops, training institutes, or graduate courses. This view is being challenged by those who contend that the most effective professional development occurs in the workplace, where teachers learn through interaction with colleagues and by taking on new roles, developing new materials, and trying out new strategies. Nevertheless, most policy discussions about improving professional development are limited to how many additional days could be allocated for in-service training or how many more credits or continuing education units (CEUs) teachers should be earned to be recertified.

Teachers are unlikely to acquire the knowledge and skills needed to teach to high standards or to use constructivist teaching strategies by simply participating in a few more days of professional development. More fundamental changes are needed. Helping teachers discard beliefs and practices acquired over many years and learn new ways of teaching and interacting with colleagues requires a totally different approach. If the constructivist principles guiding changes in classroom practices are applied to professional development, then it becomes obvious that teachers not only need access to new knowledge but also need opportunities to construct new understandings about their practice through observation and discussion, to practice and refine new skills, and to reflect on their experience with colleagues.[11]

Recent studies of working conditions in schools have found that though most teachers work alone behind closed doors, they want more opportunities for collaboration and collegiality because they value what they gain

Table 1

Examples of Different Approaches to Professional Development

Approach or Method	*Individual Focus*	*Organizational Focus*
Technology Transfer	University courses or workshops by experts selected by individual teachers.	District courses for new teachers in classroom management, cooperative learning, or holistic scoring of writing.
Collegial Exchange	Participation in teacher networks or content-based teacher organizations.	School-based teams working on a project, curriculum study groups, or mentoring programs.
Subject-Matter Knowledge	University courses, institutes, or subject-matter collaboratives selected by individual teachers.	University courses, institutes, or subject-matter collaboratives linked to present or future teaching assignments.

from these interactions.[12] Research has also shown that schools are more effective when teachers have opportunities for observing their peers, helping one another, and participating in discussions about policies and practices.[13] Teachers are more likely to improve their practice if they see their interests as congruent with those of their colleagues and perceive themselves to be members of a professional community. They will be more likely to feel this way if they have regular opportunities to discuss common problems and develop solutions with colleagues. Such opportunities should be built into teachers' workdays, and this requires changes in current policies, practices, and priorities.

Thus, the answer to the rhetorical question, "Should only formal training count?" is "No." Learning that occurs in the workplace can have great value. For example, various forms of joint work and job enrichment such as serving on instructional teams or school councils can promote professional growth, especially if issues of curriculum, standards, assessment, or pedagogy are being discussed. Working as an assessor for the state is likely to involve teachers in rich discussions about standards and their application in different schools. Serving as a mentor for a student teacher or new staff member promotes reflection about one's own practice.

However, as Little has pointed out, these school-based activities, though valuable, are unlikely to be sufficient; teachers also need opportunities to remain current in their field and to broaden and deepen their knowledge of subject matter, pedagogy, and learning theory.[14] It also would be a serious mistake to ignore the value of further education in the content areas, particularly given current efforts to raise academic standards for all students. Graduate-level courses can have positive effects on teachers' content knowledge, motivation, and professional contacts, and surveys of teachers show that they value them. Findings from recent studies confirm the teachers' assessment of graduate courses; they suggest that at least in the fields of mathematics and science, the number of graduate courses individual teachers have taken in their disciplines and the total number of courses the members of a department have taken affect the level of student achievement.[15] Obviously, graduate courses taken to make a career change out of the classroom cannot be expected to improve a teacher's performance; in fact, they may drain energy and commitment and impair performance. However, courses directly related to the curriculum being taught may have considerable value.

Balancing School and Teacher Interests

Michael Fullan argues that professional development is both "a strategy for specific instructional change, and a strategy for basic organizational change."[16] He and others argue that professional development should be linked to district and school goals and also promote the long-term intellectual development of teachers. Institutional and individual interests and short- and long-term objectives should be served, and in a well-planned approach to professional development, these interests would intersect and be mutually reinforcing. However, two of the most powerful incentives for pursuit of professional development—salary increments for educational attainments and recertification requirements—often encourage choices in which short-term interests prevail over the long-term interests of either schools and teachers.

Judith Warren Little has pointed out that the relationship between professional growth and increased compensation for teachers has been compromised in several ways.[17] First, the incentives are weighted toward the early stages of an individual's teaching career. In most districts, teachers acquire sufficient credits to reach the ceilings on their salary schedules after twelve to fifteen years, and they have no monetary incentive to pursue further university coursework after reaching that point. In some states, there are strong incentives for teachers to obtain master's degrees early in their careers but little incentives for graduate

Teacher Networks—The California Science Implementation Network

The California Science Implementation Network (CSIN) is a subject-based teacher network designed to assist kindergarten through grade six teachers with the implementation of the science curriculum framework adopted by California in 1989. CSIN's purpose is to increase access to high-quality science instruction. It is one component of a systemic initiative that encompasses new curriculum frameworks and assessment procedures, textbook selection, and other professional development and school improvement efforts. Similar networks have been created in other subject areas. CSIN is supported by the state and the National Science Foundation's State Systemic Initiative.

CSIN focuses on elementary schools where science instruction is weakest. It provides high-quality professional development for entire school staffs using state-adopted science materials. It develops site-based leadership; more than 800 lead teachers have been prepared by attending eighteen-day CSIN institutes. The CSIN strategy is multifaceted. First, participating schools send a lead teacher (or two) to a CSIN institute for in-depth immersion in science teaching. Second, for the last few days of the institute, the teacher is joined by a school administrator who pledges his or her support for schoolwide implementation of CSIN. Third, the local teacher, supported by a regional staff developer, provides in-service training at the school site. A network of CSIN staff developers work with these lead teachers, helping them assess science programs in their schools and develop curricula.

study beyond that point. Consequently, it is not surprising that as the teaching force has aged, participation in graduate coursework has declined.

A second problem is that the incentive structure (e.g., salary increments and recertification requirements) places a premium on easily acquired credits that are not intellectually challenging and unlikely to strengthen a teacher's repertoire. Judith Warren Little describes the problem in this way.

> Expedience displaces genuine intellectual interest; quantity of course-taking takes precedence over coherence of programme. Although many districts limit the rate at which credits can be accrued, it remains the case that course content may be less salient than ease of completion, accessibility, and scheduling in accounting for teachers' enrollment decisions. The incentive toward easily acquired units, combined with difficulties of scheduling, pushes teachers away from subject-matter classes outside of departments of education that may contribute most to "current knowledge" and that may be most credibly linked to teaching assignments.[18]

Without strong incentives for teachers to pursue learning that has depth and rigor and pressure on schools and districts to take their investments seriously, professional development can become the educational equivalent of junk food. Consultants and small firms provide workshops on countless topics, but there is often little follow up and little effect on practice. Teachers often earn CEUs for attending conferences or listening to speakers regardless of the relevance of the content to their classrooms.

Another problem is that the emphasis placed on incentives for teachers as individuals can lead to the neglects of school needs. Under current policies, teachers may be quite active promoting their own personal growth or advancing their careers but collectively may not be meeting the needs of their students or school. For example, awarding teachers salary credits and reimbursing their expenses for courses leading to administrative certification do not change classroom practices, except to remove teachers from the classroom. Not only do most current policies focus on the individual teacher rather than on the school, but they seldom encourage school-based professional development or support opportunities for teachers to work together perhaps with the support of a resource person. Yet it is also almost axiomatic that it is easier to change practice if a group of teachers work together and support one another.

One approach to solving these problems was to permit CEUs to be earned for participation in locally sponsored staff development activities and the offerings of various technical assistance agencies. The policy theory was that granting teachers credit for locally designed professional development would ensure that organizational needs were addressed. In the 1980s, there was a trend toward hiring district-level staff development personnel to

develop and present programs for teachers. These policies may have helped meet the immediate organizational needs of some school districts, but awarding CEUs for local in-service activities has also served to further discourage teacher participation in more demanding forms of professional development such as university courses. Again, Little describes the effects these policies have had.

> In effect, districts expand the resources devoted to equipping teachers with the local knowledge they require to succeed with local students; they correspondingly reduce the share of resources most clearly linked to teachers' careers and to the pursuit of subject-matter knowledge. In doing so, they gain control over the content of activity for which they subsequently compensate teachers but lose some of their capacity to encourage individual initiative and to subsidize teachers' external exploration of knowledge advances. Teachers' incentive to remain current in the field is thereby diminished. The schools' ability to sustain a well-prepared workforce is further skewed in the direction of short-term priorities and accommodation of local circumstances.[19]

Recertification requirements and the award of salary increments to teachers for additional education are intended to ensure that teachers are knowledgeable about advances in teaching and learning. The outcomes of these policies are supposed to be increased organizational capacity and improved instruction. However, the overall impact of these policies appears to have been an increase in low-quality professional development activity that is only loosely related to organizational goals, unsatisfying to teachers, and ineffective at improving instruction as well as a decrease in teacher participation in rigorous graduate study in the disciplines.

Three decades ago, James Conant argued that salary increments should be awarded to teachers only for graduate courses that were part of a coherent degree program and were clearly related to a teacher's current or future teaching assignment. He did not feel, for example, that salary increments should be granted for courses taken by teachers to obtain administrative certification.[20] Conant's recommendations would ensure that organizational interests were protected while compensating teachers for intellectual and professional growth that was work-related. The point is to design incentives that link organizational and individual interests, balance short- and long-term agendas, and strengthen the impact of professional development on the practice of teaching. A similar approach should be taken to recertification requirements. The linkages among salary increments, recertification requirements, and institutional and individual interests should be examined, and possibly redesigned, in light of the need for high-quality professional development generated by current reforms.

The critical tests for all professional development activities should be: Are they intellectually challenging, do they add to the participants' repertoire of skills and content knowledge, do they enhance their contributions to the school community, and do they lead to improvements in teaching practice? If the answers to these questions are in the affirmative, then an activity adds value and should be recognized and supported as professional development. The value of an activity is not inherent in its form. Ultimately, value depends on content and effects. Formal training experiences, graduate study in the disciplines, and learning through job enrichment all may have value. However, current policies and patterns of resource allocation give priority to formal training experiences, neglecting the other two modalities. In fact, the emphasis has been on short workshops that focus on pedagogy. Current policies do not encourage teachers to acquire deep understanding of subject matter through graduate education nor do they recognize the value of collegial interactions and professional activities. Professional development policies and practices must be redirected to a more balanced approach that recognizes the importance of both subject matter and pedagogy, building learning communities within and across schools and professional experiences other than formal education and training.

4 The Current System of Professional Development

How do teachers currently improve their practice and learn new ways of doing their jobs? An assessment of professional development activity in school districts should include examination of teachers' interaction with their colleagues, the character of supervision, the nature and quality of formal education and training experiences, and the level of participation in professional activities. Almost all public school teachers are regularly supervised and evaluated; this process typically takes the form of one to five classroom observations annually conducted by an administrator or curriculum supervisor. Observations are usually followed by written feedback and conferences. Written improvement plans may be required of teachers. Supervision and evaluation are costly, labor-intensive activities that should lead to professional growth and school improvement but often do not. In a few states, the teacher evaluation process is directly linked to teachers' participation in further education because local boards of education are empowered to specify courses or training for teachers receiving poor evaluations. In general, however, the supervision process is weak. Supervisors often lack expertise in the teachers' content area or have little time to give assistance to teachers who need it. Evaluations often have no bearing on professional development activities.

In addition to periodic supervision, formal training experiences or workshops may be provided for teachers several times a year. Students are released for a half day or, more rarely, for a full day so that the teaching staff can attend an in-service program. The agenda is usually controlled by district or school administrators, though teacher input is often obtained through surveys or committees. Occasionally, the responsibility for planning will be delegated to teachers. There may be a speaker on a "hot" topic or a number of simultaneous workshops offered by experts recruited from consulting firms, other districts, universities, regional service agencies, or the state education department. There are a host of consultants, small companies, and helping organizations prepared to deliver packaged programs for teachers for a fee. These presentations or workshops may be loosely linked to district or school goals, but often the relationship is marginal. In most cases, the teachers spend a few hours listening and, at best, leave with some practical tips or some useful materials. There is typically no followup, and the next in-service may address an entirely different set of topics.

These formal activities are supplemented by participation of a limited number of teachers in professional conferences, workshops offered by regional service agencies or the state education agency (SEA), and summer workshops offered by a variety of sponsors. The amount of this activity depends in part on the local fiscal situation, in part on the priority given by local policymakers to teacher development, and sometimes on teachers' willingness to bear some of the costs themselves. Teachers working in state or federally funded categorical programs receive more of these opportunities than regular classroom teachers because more funding is available and because special programs are provided for them by state and regional agencies.[21] In addition, some districts pay for graduate courses taken by teachers. Some of these teachers will be working toward master's or doctorate degrees in their fields of specialization, but many will be seeking qualifications that will eventually remove them from the classroom.

Interaction among teachers is quite limited in most public schools, and the conversations that do occur tend to focus on immediate problems. Elementary teachers often have no

scheduled time to meet with their peers and have to create time during lunch or after school. Middle school and high school teachers are more fortunate as they typically have daily planning periods and occasional department meetings. Most fortunate of all are those teachers who work on teams and meet with their immediate colleagues on a daily basis. Even in the best of these situations, however, the constant press of student needs, lesson planning, discipline, administrative priorities, and paperwork leaves precious little time for teachers to reflect on their practice, share ideas, or visit other classrooms. Although some states have provided support for beginning teachers through mentoring and there is increased interest in teaming, there is still inadequate attention given by state policymakers, school board members, and administrators to the benefits to be derived from regular dialogue among teachers about their teaching practice.

The prevailing pattern of professional development in most school districts is in conflict with the constructivist paradigm on which systemic reform is based. The workshops, packaged programs, and supervision all too often employ the one-right-answer, information-dispensing, behaviorist view of teaching and learning that reformers hope to eradicate from classrooms. Programs are standardized to facilitate marketing and delivery by "trainers" rather than being designed to meet the needs of a particular school or group of teachers. Teachers are seen as passive learners who are expected to absorb the knowledge dispensed by "experts" during in-service workshops and change their practice on their own. Their own expertise and experience is seldom valued and the problems of integrating new techniques or knowledge into their current practice are often not addressed. The most commonly used approaches to improving practice, such as workshops, model programs, college courses, or supervision, would have much greater value if the teaching strategies that teachers were expected to use were modeled, if the craft knowledge possessed by teachers was respected, and if teachers were given opportunities over time for discussion, critique, practice, and feedback.

Examination of the professional development policies and practices in several prototypical school districts will give the reader a better idea of the range of approaches being used.

The three examples on page 16 illustrate the variation in school districts' professional development policies and practices. A team of researchers from the Education Development Center (EDC) recently examined professional development in four urban districts and found that their policies and practices varied widely in almost every dimension: governance and control; access to external resources; the degree of coordination or fragmentation, content, scheduling and delivery; and opportunities for collegiality.[22]

The Impact of Current Professional Development

The "expert" assessment of the impact of current professional development activities has probably been summed up best by Michael Fullan when he wrote that ". . . professional development, one of the most promising and powerful routes to growth on the job, to combating boredom and alienation, to school improvement, and to satisfaction, has gotten a bad name."[23] There is a growing body of opinion among "experts" that the conventional forms of professional development are virtually a waste of time.

Local approaches to professional development vary widely. Variety is not necessarily bad as there is no one best approach, but approaches that lack focus and continuity, consider only short-run needs, fail to involve teachers and respect their expertise, and neglect subject-matter knowledge are unlikely to improve teaching and learning significantly in the long run. In the vast majority of instances, local activities lack the focus, intensity, and follow-through required to change classroom practice. In many cases, neither individual nor organizational activities are closely linked to district goals. Even where is some substantive linkage, the lack of followup and constantly

Three Approaches to Professional Development Policies and Practices

Conventional In-service Programs

In a large suburban middle school in an eastern state, the staff of nearly 100 teachers identified 27 topics for in-service programs. The school's professional development committee then ranked them and came up with the following top ten list.

- Effective models of inclusive education
- Interdisciplinary themes
- Conflict resolution
- Multiculturalism as a theme
- Strategies to promote problemsolving in the classroom
- The impact of "national" curricular standards
- Portfolio assessment
- Teachers as publishers
- Community service in the middle school
- Shared decisionmaking

All of these topics are important, and they are at least loosely linked to the state's reform agenda. They indicate that teachers in this school are aware of the reforms being proposed and sensitive to the changing expectations. This is encouraging. But the list also reveals the diverse range of concerns that teachers are being ask to address. It is an intimidating list. And the school's response will be to offer half-day in-service programs in which multiple topics—including some not on the list but selected by administrators—will be "presented" to teachers by outside experts, district staff, and occasionally other teachers. The learning opportunities provided by this format are too brief to develop new skills or master new knowledge and too fragmented to develop a common vision or agenda among the staff.

The topics addressed will vary from one in-service event to the next, and there will be little or no followup unless individual teachers or teams decide to pursue a topic on their own. The district also sends teachers to conferences and workshops of their choosing, pays for college credit earned toward a master's degree, and even grants a few sabbaticals each year. This is probably typical of teacher in-service training in a resource-rich district. Considerable investment is being made in human resource development, but it lacks focus and intensity. Professional and monetary benefits accrue to individual teachers, but it is not clear how the schools benefit or how the activities promote improvements in student performance.

"In-house" District Training

In another state, a large regional district with twenty schools has a district office of staff development that employs three full-time trainers. The office offers after-school courses and two- or three-week summer courses for teachers on topics related to district objectives. Each year, the district offers a basic course on pedagogy and classroom management that is mandatory for all new teachers. The office also conducts two annual districtwide in-service events that address a range of topics.

The district staff developers consult with teachers in developing their courses, but the topics are determined primarily by district needs. For example, they work with district curriculum committees to plan courses in support of district curricular revisions. Curricular revisions are carried out on a five-year cycle, and both the development and the implementation of the revisions are supported by the staff development office. The summer courses are voluntary, but after-school courses are sometimes mandatory. Last summer, courses were offered on the NCTM standards, "hands-on" science, technology in the classroom, and the use of writing portfolios. Most courses are taught by teams that include outstanding teachers from the district and one of the staff developers. Outside experts are seldom used. Teachers in this district also may be reimbursed for three college credits annually. They are occasionally given released time to attend professional conferences, but little support is provided for attendance at workshops or training institutes outside of the district.

The topics addressed by the office of staff development are tightly linked to district priorities and there is sometimes followup through the supervision process. This is typical of districts that have developed their own training capacity. There is focus, careful planning and delivery, some use of teacher expertise, and occasional followup, but there is little support for school or teacher initiatives. The assumption is that all of the schools will follow the same path and that all teachers require and will appreciate the same training experiences.

School-Based Staff Development

In a school district that has undergone significant decentralization over the past five years, the primary responsibility for staff development has been shifted to the schools. However, the central office still holds two systemwide staff development days annually and retains lead responsibility for staff development funded by state and federal categorical funds. The systemwide in-service days focus on district priorities such as the new mathematics curriculum and information about changes in state policies and regulations. The district also reimburses teachers for three credit hours of graduate work annually.

Each school has a small budget of about $300 per teacher for staff development. The funds are used to support four or five half-day in-services each year, send teachers to workshops or conferences, and purchase materials for professional libraries. These decisions are made by the principals and the school councils composed of teachers. Staff are surveyed on their needs and interests, but each school has an improvement plan and the plan's objectives tend to shape the staff development.

The actual staff development activities vary somewhat across school sites, but the in-service days are generally used by schools to provide time for teachers to work on curriculum, team projects, or funding proposals. There is limited use of outside experts by the schools; one school is working with a consultant on a community service project and another is using a consultant to train teachers to use a new computer lab. There is also not much formal training, though several schools have run computer workshops and others have conducted sessions on holistic scoring for writing, use of manipulatives in mathematics, and portfolio assessment. Teachers say that it is rare for individuals to be funded to attend conferences because the schools prefer to send teams to workshops connected to their plans or to team projects.

In this case, professional development is closely linked to school goals and considerable time is provided for staff to work together on projects. Formal training is scheduled only when specific skills are needed to carry out school plans. However, the planning of professional development is constrained by the experience of the staff and the information available to them. The district provides limited opportunities for individuals to pursue their personal interests, but the emphasis is on the needs of the schools.

changing agendas weaken the potential effects of professional development on practice.

However, labeling all local professional development activity ineffective, like most stereotypes, goes too far. Although many of the criticisms directed at conventional approaches to professional development are warranted, there are documented examples of changes in practice resulting from well-designed training programs.[24] Many of these cases followed the well-known model of theory-demonstration-practice, feedback, and follow-through advocated by Joyce and Showers.[25] This model emphasizes the importance of coaching and technical assistance in the classroom. Other studies have confirmed the positive effects of this approach.[26] However, the intensive training and frequent followup advocated by Joyce and others are rarely used and should not be confused with the one-shot workshops characteristic of staff development in local districts.

Expenditures on Professional Development

How much is currently being invested in professional development for teachers? Most states and school districts are unable to answer this question. They cannot even estimate overall expenditures because the data needed are not available. Most states' accounting systems make it difficult to aggregate expenditures associated with staff development and few districts attempt to track them. According to Judith Warren Little, there are four components to expenditures on professional development.[27] If expenditures for supervision are added, the components of expenditures are:

- current monetary expenditures associated with the provision of formal professional development activities;
- costs of the administrative and teacher time used for all of those aspects of the supervision process intended to improve instruction;
- opportunity costs associated with reduced instructional time resulting from opportunities to learn during the workday;
- present value of teachers' future salary increases gained as a result of professional development; and
- participants' own investments of uncompensated time and out-of-pocket expenses.

Local policymakers usually consider only the first of these five components and give little attention to costs such as the time spent on planning by administrators and teachers, tuition reimbursement, and salary increments awarded for accumulation of college credits or CEUs.

Linking Research and Practice—American Federation of Teachers' Education Research and Dissemination Program

The Education Research and Dissemination Program (ER&D) of the American Federation of Teachers (AFT) seeks to bridge the gap between research and practice by involving teachers in the analysis of the implications of research findings for practice. Based on collaboration and interaction between practitioners and researchers, the program disseminates research syntheses prepared by skilled teachers and involves teachers in discussions of their implications for practice. Site coordinators are prepared by AFT to lead local initiatives and prepare local trainers. In this way, the program's benefits spread to increasing numbers of teachers. Professional development materials are customized to fit local needs.

A number of strands have been established, covering both generic and content-specific pedagogy. All are based on high student standards. By providing a knowledge base rooted in research and shaped by the experience of practitioners and using a problemsolving approach to training, ER&D enables teachers to actively reflect on practice and apply research. Participants are encouraged to debate and accept or reject the research.

Thinking Mathematics, a strand begun in 1987, is the product of a collaboration between AFT and the Learning Research and Development Center of the University of Pittsburgh under a National Science Foundation grant. Based on ten principles drawn from research on mathematics instruction, it is consistent with the standards of the National Council of Teachers of Mathematics. Three volumes of research syntheses aimed at elementary and middle school teachers have been developed, and professional development has been provided for many local teams. The effectiveness of the program depends on the cooperation of the local union affiliate and the school district. When districts have provided time and supported followup, the program has had significant effects on the teaching of mathematics.

There have been some studies of local expenditures on professional development. Moore and Hyde conducted a study of three urban districts and found that actual expenditures on staff development were up to fifty times the estimates provided by district staff.[28] Total expenditures ranged from 3.4 percent of the district budget to 5.7 percent, and the cost per teacher ranged from $1,000 to $1,700 in 1980 dollars. In addition to the cost of in-service workshops and training, they included costs associated with time allocated to teacher observation and evaluation, teacher salary increases, tuition reimbursement, department meetings, workdays associated with the opening and closing of school, and similar activities in which the purpose was the improvement of teaching. They included four of the five expenditure components listed above, leaving out only the value of teachers' uncompensated time and out-of-pocket expenditures. This approach was replicated in several districts in Alaska and Washington, producing similar findings.[29]

A later study conducted in California by Little and her colleagues found that the average public expenditure per teacher was $1,360.[30] This study did not include the costs of supervision. Investments made by individuals were examined and the researchers found that for every public dollar spent on professional development, teachers contributed another 60 cents in uncompensated time. They also found that 90 percent of the total investment was spent on district-controlled activities. This study was replicated in several other states during the 1980s, and researchers found similar patterns of spending for professional development.

Given the increased number of states requiring districts to provide support for beginning teachers, increases in the number of mandated district in-service days, and the rising costs of college tuition, district expenditures may be even higher now than they were when these studies were conducted. This inference appears to be borne out by findings from the previously mentioned Education Development Center study of four large urban and suburban districts.[31] Although the EDC researchers generally applied the model of staff development costs developed by Moore and Hyde, they did not include the present value of future salary increases gained as a result of increased educational attainments or a measure of personal expenses for professional development.[32] The EDC study also excluded expenditures on categorical program teachers, which are probably higher than expenditures on regular classroom teachers. Even with these significant omissions, their estimates of expenditures for professional development ranged from 1.8 percent to 2.8 percent of the districts' operating budgets and from $1,755 to $3,529 per regular classroom teacher annually. These figures clearly underestimate the actual expenditures for professional development of regular classroom teachers, however, because the present value of future salary increments was excluded. In the previous studies cited above, teacher salary increments were found to be the most costly component of professional development expenditures, accounting for more than 60 percent of the total.[33] If estimates of the costs of salary increments were added to the EDC estimates, total expenditures in the four districts would have ranged from 4.5 percent to 7 percent of their operating budgets.

Although we do not have accurate national or state data on the amount of the current investment in professional development, we can identify the areas in which investments are made. This may help policymakers develop their own estimates of current expenditures on professional development in their states or school districts. In most states, local districts bear the brunt of paying for professional development. Their expenditures include:

- planning and delivering in-service programs;
- operating schools two to five more days per year in order to provide in-service training;
- sending staff to workshops, conferences, and other professional events;
- personnel supervision and evaluation;

- reimbursing tuition; and
- paying the salary increments earned by teachers as a result of attaining graduate degrees, college credits, or CEUs.

Based on the studies cited above, these activities probably account for 3 percent to 7 percent of local operating expenses.

State investments in professional development include:

- expenditures for state-funded agencies such as intermediate units that provide professional development;
- state or federal categorical funds set aside for professional development;
- time provided by state employees for in-service programs or consulting to schools;
- the cost of administering teacher recertification programs;
- expenditures on state-funded conferences or workshops;
- state subsidies to colleges and universities for courses provided to teachers or for extension services to schools;
- tuition reimbursements and salary increments for credits for teachers employed directly by the state; and
- the amount of additional state aid to local districts generated by local budget growth resulting from teacher salary increases earned as a result of credits or degrees.

State investments in professional development probably range from less than 1 percent to more than 3 percent of total state spending on public education. Most of these funds are spent by local school districts. Little estimated that local districts actually controlled 80 percent of the state funding for professional development in California.[34] This appears to be the general pattern across the states, though some states do try to direct districts to use funds earmarked for professional development in particular areas.

The federal government is also making a significant contribution to the professional development of teachers. The Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) recently estimated that the federal government spent $369 million in fiscal 1993 on teacher development programs in science, mathematics, and technology.[35] In addition, Chapter II of the Elementary and Secondary Education Act (ESEA), the Eisenhower State Mathematics and Science Program, allocated $246 million in the same year. There is also funding for professional development in other components of ESEA such as Chapter I, bilingual education, special education, and vocational education. As a consequence, science and math teachers, Chapter I and special education teachers, and other teachers linked to federal programs have received more professional development than other teachers.[36]

Legislation passed in 1994 will increase federal support for professional development. Most of the funds provided for the states in the Goals 2000 legislation must be passed on to local districts for professional development in support of state and local improvement plans. The new ESEA increases the funding for the Eisenhower program (now referred to as Title II) and permits states to use the increase for content areas other than science and mathematics. States will be required to produce a comprehensive professional development plan to qualify for Eisenhower funds. Perhaps the biggest changes will be in Title I (formerly referred to as Chapter I), where there will no longer be ceilings on the amounts that can be expended for professional development. All Title I schools in program improvement status will be required to spend at least 10 percent of their Title I funds on professional development and all other Title I schools are required to devote "sufficient resources" to these activities.

It should be immediately obvious that these local, state, and federal expenditures are not trivial. The direct expenditures on professional development are significant, and when the indirect costs such as salary increments and opportunity costs are added in, the total amount of investment in teacher development is likely to surprise most policymakers. It is often said that neither the public

nor policymakers are willing to support professional development for teachers, but they are supporting it now on a much larger scale than they realize.

The professional development opportunities currently available to most teachers leave much to be desired. Local school districts will need guidance to improve their professional development policies and practices. Narrow conceptions of professional development and over-reliance on "training" offered through short workshops limit the value of local efforts. Fragmentation of funding streams and poor data on expenditures only make matters worse. Districts do not know how much they are spending or what they are spending money on. It is clear, however, that state and local policymakers are spending much more than they think they are on professional development and that the funds are often being spent in ineffective ways for unclear purposes.

5 Guiding Principles for Professional Development

Lee Shulman tells a story about the great Rabbi Hillel to illustrate a basic principle that should underlie the design of professional development policies and programs. A skeptic approached Hillel and asked him to teach him the full message of the Torah in a single sentence. Hillel responded, "Do not do unto your fellow man what you would not have him do unto you. That is the essence; the rest is commentary." Shulman suggests that a parallel proposition should guide those seeking to reform education: "Do not do unto teachers what you would not have teachers do unto students."[37]

Teacher Collaboratives—The Classroom Assessment in Mathematics Network

The Classroom Assessment in Mathematics (CAM) Network was a professional development project for urban middle school mathematics teachers. A collaboration between the Education Development Center and the Urban Math Collaboratives (UMC), CAM's purpose was to ensure that classroom assessment was sufficiently robust to capture the best instructional practices as outlined by the National Council of Teachers of Mathematics. Over the course of two years, the project worked with a group of twenty-seven teachers and six mathematics supervisors in six UMC cities. The teachers were participants in their local collaboratives and were asked to join the project by their mathematics supervisors. During 1991-92 and 1992-93, the teachers and supervisors from the six cities attended institutes on assessment. The teachers then returned to their classrooms and began experimenting with authentic assessment. They met periodically to share their experience.

A key feature of the network was the provision of collegial and supervisory support, with release time provided for the teachers from one class each day and regular meetings of CAM groups in each city. The project provided teachers with conditions conducive to building expert knowledge in classroom assessment: a set of appropriate assessment resources; time for reflection, planning, and experimentation; and opportunities to develop collegial relationships with other teachers and with mathematics supervisors that provide support and guidance and lead to a shared vision of good practice.

What should we not do to teachers? Or, to state the question more positively, what are the elements of "good" professional development? Are there some general principles that might guide the formulation of new policies and programs? Unfortunately, we know a lot more about the professional development that we don't like, than we do about the professional development that we need. In the absence of persuasive research evidence, the views of practitioners and experts are probably the best guide to formulating more effective policies and programs. A number of experts and national organizations have suggested standards for professional development.[38] Review of these proposals suggests that there is considerable consensus on the general principles that should guide the design of policies or programs for professional development.

These general principles are presented below. Although not every teacher, staff developer, or researcher would wholeheartedly agree with each and every statement, collectively the principles represent the mainstream of current thinking about professional development. The most promising professional development programs or policies are likely to be those that are based on, or at least consistent with, the principles that follow.

The most effective professional development policies and programs are likely to be those that do the following.

- *Stimulate and support site-based initiatives.* Professional development is likely to have greater impact on practice if it is closely linked to school initiatives to improve practice. This strengthens the rationale, incentives, support, and followup for changes in teaching practice. Research on effective schools and the experience with school improvement programs have demonstrated the value of permitting school staffs to par-

ticipate in setting their own professional development agendas.

- *Support teacher initiatives as well as school or district initiatives.* Given the reported success of some teacher networks and study groups, the roles that subject-matter organizations are playing in standards-setting, and the serious capacity problem facing the states, it makes sense to support professional development activities initiated by teachers and teacher organizations. These initiatives promote professionalization and may be cost-effective ways to engage more teachers in serious attempts to improve their practice.

- *Reflect the knowledge base on teaching.* Teachers should have access to the best research on teaching and learning, and they also should have regular access to successful practitioners. Providers of professional development should be required to demonstrate that the content of their training and materials has a firm foundation in research and practice. Price argues that good professional development should encompass the expectations that educators hold for students, child-development theory, curriculum content and design, instructional and assessment strategies for instilling higher-order competencies, and understanding of school culture and shared decisionmaking.[39]

- *Offer opportunities for teachers to broaden and deepen their subject-matter knowledge.* Teachers should be familiar with the basic knowledge in their fields. If teachers are to teach for deep understanding, they must be intellectually engaged in their disciplines and work regularly with others in their field. Intensive study in the disciplines can be intellectually stimulating and can contribute to teachers' abilities to help students achieve the deep understandings of key concepts envisioned in the national standards. Subject-matter studies should have rigor, depth, and coherence.

- *Offer teachers opportunities to be active learners.* Teachers need intellectual, social, and emotional engagement with ideas, materials, and colleagues. They need opportunities to explore, question, and debate new ideas. Professional development should encourage teachers to question assumptions, reflect on their practice, challenge research findings, and evaluate alternatives rather than simply accepting "truth claims" made by experts or fads promoted by gurus.

- *Demonstrate respect for teachers as professionals and as adult learners.* Teachers should play lead roles in planning and delivering professional development, drawing upon and sharing their expertise in order to understand and improve their practice. Using teacher expertise increases capacity and credibility. Professional development policies and programs also should take the varying needs and interests of teachers into account. Induction and mentoring programs provide individual assistance for new teachers, but less attention is being given to the varied needs and interests of experienced teachers.

- *Provide sufficient time and followup support for teachers to master new strategies and content and to integrate them into their practice.* Introduction of new practices such as constructivist teaching or portfolio assessment requires discussion and questioning, risk-free practice, sharing and reflection, and revision. There should be followup and continuity. A long-term perspective is needed because introduction of complex ideas such as portfolio assessment may require support over several years.

- *Provide accessibility and are inclusive.* Too often good professional development is treated as a "reward" instead of a collaborative activity. It should be viewed as a valuable part of teachers' work rather than as a privilege to be granted to "favorites" by administrators. All teachers need opportunities to learn.

These design principles can be used to assess existing professional development activities as well as to guide the development of new policies or programs.

6 Challenges in Professional Development

Serious challenges face policymakers who seek to put the aforementioned principles into practice to improve professional development opportunities for teachers. Among them are a familiar set of obstacles: time, funding, setting priorities, teacher attitudes, incentives, and public support.

Time

The greatest challenge is time. There is a great deal for teachers to learn (and unlearn) and they must do it while working full time. Time is needed to plan professional development, to interact with colleagues about practice, to try out new approaches, and to incorporate changes into their professional practice. Addressing the question of how to provide the time needed for these activities, Hugh Price has asked why we expect K-12 teachers to conduct their courses daily and questioned whether so many contact hours with students are really needed. He argues:

> If upon close examination [the contact hours] aren't [needed], then this may "merely" be a custodial issue. In other words, we keep both in class because we're unsure what to do with the students while their teachers are off engaged in professional development activities. And, to be truthful, because we don't quite trust the teachers, especially the reputedly unmotivated majority, to use the newfound time productively.[40]

Price goes on to observe that few board members, school administrators, or parents are willing to reduce contact time for teachers in order to increase the time available for professional development. However, there are some indications that these attitudes may be changing. In Kentucky, for example, districts are permitted to apply to the state for permission to use up to five instructional days for professional development in addition to the four days that are required of all districts. In 1994 more than 80 percent of the state's schools were granted permission to increase the number of days allocated to professional development. And the Kentucky Legislature recently extended this provision of the law for another two years. Kentucky also provides state funding for professional development. However, in most school districts across the country, reform-minded teachers and administrators continue to be frustrated by inadequate allotments of time for professional development and by their dependence upon local boards of education for funding.

There are, of course, other approaches to solving the time problem besides simply increasing the number of in-service days. Time could be provided during the school day, as Price suggests, but this usually requires hiring more teachers, releasing teachers from other duties, or reducing curricular options or services, actions most school boards are loath to take because of their costs and because of objections by parents and taxpayers. The school day could be lengthened, but this would inevitably lead to demands for increased compensation for teachers. Time after school is often mentioned, but convening tired teachers at the end of the work day hardly creates ideal conditions for serious discussion or practicing new skills. Summer institutes can be effective, but during the summer many teachers pursue other employment or have family responsibilities and they may not be willing to give up a few weeks of their summer for professional development.

Funding

Is the current level of funding adequate to support the reforms described earlier in this report? Many reform advocates think not, and they have called for substantially increasing

investments in professional development. They argue that additional state and federal funds are necessary to prepare teachers to implement higher standards, more rigorous curriculum, new assessments, school-based management, and integrated social services. Estimates of the additional funds needed run into billions of dollars. However, as there is no standard of adequacy to assess the current opportunities for teachers, it is difficult to determine whether the resources currently available are adequate or not. In any case, in these financially difficult times when many public needs are competing for limited public dollars and voters are clamoring for tax relief, new funds may be hard to obtain from any level of government. Clearly the level, use, and efficacy of current investments should be carefully examined before new funds are appropriated. At least part of the increased capacity required to support systemic reform might be provided by reallocating or making more effective use of current investments.

Some combination of reallocation of funds or increased funding is necessary because there are simply no cheap or easy solutions to the time problem. If policymakers want teachers to improve their practice and keep up with the knowledge in their fields, take more responsibility for curriculum and instruction, and work together as teams, they will have to reduce their workloads; buy additional time from them in the form of longer days, longer school years, or regular summer institutes; or use some combination of these strategies. This is why many observers believe that additional investment is needed in professional development to implement school reforms. However, the first priority should be to reallocate and make better use of the substantial investment in professional development already being made by local school districts and the states. As it is widely believed that the resources now available could be used more efficiently, it would be helpful to know how much is currently being spent, what it is being spent for, and with what effect before allocating additional funds.

New approaches such as professional development schools or teacher networks could be supported at least in part by reallocating funds now spent on in-service days, college courses unrelated to teaching assignments, and other less productive investments in professional development. Additional resources may still be needed, but this can only be determined after decisions are made about the preferred mix of professional development activities and the amount of the current investment that can be reallocated. The process of reallocation will not be easy. There will be resistance from those who prefer the status quo, but the new forms will not take hold and spread if they must be funded entirely with new resources.

Setting Priorities

The time problem is exacerbated in many states by state-mandated in-service programs and by a failure to set priorities, which leaves school districts coping with the task of allocating limited time across many competing agendas. Some state legislators seem to feel that the solution to any problem facing the schools is mandating teacher in-service on the issue. Among the agendas currently competing for limited time are multiculturalism, inclusion, preparation for state testing, safety and security, discipline, AIDS education, substance abuse, school violence, and child abuse. Often, little time is left for addressing the reform of instruction or the core curriculum. The absence, or the proliferation, of priorities leads to the lack of focus that now characterizes professional development.

The reforms in standards, curriculum, and instruction advocated by national teacher organizations, such as the National Council of Teachers of Mathematics and the National Science Teachers Association, and professional organizations, such as the American Association for the Advancement of Science and the National Board for Professional Teaching Standards, demand that priorities be set. David Cohen describes the task in the following way.

> The teaching that reformers seem to envision thus would require vast changes in

what most teachers know and believe. Teachers would have to revise their conception of learning, to treat it as an active process of constructing ideas rather than a passive process of absorbing information. They would have to rediscover knowledge as something that is constructed and contested rather than handed down by authorities. They would have to see that learning sometimes flourishes better in groups than alone at one's desk with a worksheet. And in order to learn, teachers would have to unlearn much deeply held knowledge and many fond beliefs. Such learning and unlearning would require a revolution in thought, and scholars in several fields have shown that such revolutions are very difficult to foment. Moreover, once teachers' academic knowledge and conceptions of learning changed, they would have to learn how to teach very differently.[41]

This implies that states and school districts may have to set priorities in order to offer appropriate professional development experiences. However, decentralization policies such as school-based management often give local school staffs more control over the form and content of professional development. Just as decentralization of decisionmaking does not guarantee increased collegiality, it also does not guarantee better professional development policies and practices. Decentralization can reinforce parochialism, and collegiality can protect the status quo.[42] Teachers left to their own devices may simply continue ineffective forms of professional development because they are accustomed to them and because they are not threatening.

How much guidance should the state provide, and what form should it take? Should the state set priorities or require districts to set them? How much of the content of professional development should be prescribed by state or local policymakers? How much discretion should individual teachers be given to pursue professional development of their own choice at public expense? These are the kind of difficult questions that must be addressed. The answers are likely to vary from state to state, perhaps even from school to school, depending on professional culture and leadership, the severity of needs, and the scarcity of resources.

Teacher Attitudes

Most public school teachers in the United States have been subjected to countless in-service programs, often reflecting the latest fads in education. Many teachers believe that the professional development that they have experienced has been of little practical use.[43] Teacher attitudes about professional development and their motivation to seek opportunities for professional growth are shaped by their experience. In schools where professional development has regularly met the high standards described earlier, teachers are usually enthusiastic and engaged in improving their practice; where professional development has failed to meet these standards, many teachers are likely to regard it as a waste of time. As a consequence, their expectations are low, and they will settle for just being entertained or use professional development time for socializing with their peers. Too often the norms appear to be "entertain me," "don't ask me to do anything," and "give me something I can use tomorrow." Many teachers will have to be persuaded that professional development can help them improve their practice.

The remedial mindset with which many state and local policymakers approach professional development policies also colors teachers' responses. Too many policymakers see professional development as a mechanism for correcting teacher deficiencies rather than as a source of growth, enrichment, and inspiration. Most states require teachers to earn a specific number of college credits or CEUs within a set time period, typically five years, to be recertified. These requirements can have the effect of devaluing professional development, as many teachers see them as meaningless burdens imposed by a punitive bureaucracy and try to dispose of them in the easiest possible manner.

It may be hard to convince some teachers that new forms of professional development will work better than the old approaches or that

Professional Development School—Michigan's Brandon/Oxford

The Brandon/Oxford Professional Development School (PDS) in Michigan is the result of a partnership among the Brandon School District, the Oxford School District, Oakland University, and the Oakland Intermediate School District. In 1991 members of the boards of education, teachers, parents, and administrators from all four institutions met to discuss the formation of a partnership. They wanted to encourage collaboration and sharing, provide opportunities for dialogue and reflection, and strengthen professional development. The outcome was an agreement to open a jointly operated PDS in the fall of 1992. The school districts restructured their work to schedule time for staff planning, and the instructional day was lengthened to compensate for the lost instructional time. The plan allows for the placement of full-year teaching interns by the university.

Under the redesigned schedule, the workday for teachers is from 7:20 a.m. to 2:50 p.m., and the first two and half hours on Wednesdays are used for planning and professional development. College faculty, intermediate unit staff, and district staff participate in these activities. Joint meetings of the district faculties are held to encourage collaboration. A building steering committee serves as a clearinghouse for issues, which are then resolved by faculty committees. PDS has extensive documentation of its activities and their benefits.

they will gain more from them. Most teachers have had no experience that would lead them to such conclusions. Until they have been a team member, participated in a teacher network, or worked with a clinical teacher, they are likely to be skeptics. Moreover, teachers are not accustomed to risking embarrassment by trying new approaches or discussing their experience with colleagues. To the contrary, the norms in most schools discourage open discussion of classroom problems. Standard professional development usually entails no risks for teachers because they are simply passive participants. If teachers are expected to take risks and try new techniques, there must be some buffering to protect them from the social and professional consequences of the struggle to change their practice and the possibility they may encounter failure along the way to improvement.

Incentives

The vast majority (95 percent or more) of American teachers believe that they are well-prepared to teach.[44] Many see no need to change their practice, and considerable persuasion and support are required to get them to try new approaches. The purpose of professional development is to help them make such changes, but are there incentives that will make them more willing to participate and more open to change?

Policymakers have focused on increased compensation and recertification as the primary incentives to encourage teachers to pursue professional development. The implicit assumptions of most state policies have been that most teachers would not seek to improve their knowledge and skills unless they were required to do so to remain employed and unless they were compensated for their efforts. Recertification laws and the link between formal education and salary advances have institutionalized these assumptions. However, as noted previously, these policies have had some counterintuitive, negative effects on professional development because:

- in many instances, teachers are given salary increases for almost any credits or CEUs that they earn, *regardless of their link to their current work assignments;*
- the incentives are more effective at the beginning stages of a teacher's career;
- teachers may be encouraged to pursue the most easily acquired units, rather than the most useful learning experiences; and
- individual interests of teachers may be given higher priority than organizational interests.

These problems are compounded by inequities in teacher access to professional development of all kinds that result from variations in district wealth, community attitudes, and location. The most affluent districts are able to hire the best-qualified teachers and then offer them the most attractive opportunities for growth. Far too often, professional development is simply another case where the rich get richer. Teachers working in poor districts or in isolated communities have fewer options and fewer opportunities.

Policymakers have also used special incentives aimed at particular populations of teachers. Institutes and conferences, sabbaticals, and professional leave are often used to provide professional development to selected groups of teachers. These are often the highest quality opportunities and they raise further equity questions. Should policymakers invest in all teachers regardless of their background, motivation, interest, or performance in the hope that it will do some good? Or should they invest only in the most highly motivated and hope that they can convert their colleagues? Hugh Price argues that investments must be made in all teachers if we hope to reform the schools. He says:

> . . . mustn't we believe, as an article of faith, that even the skeptics, if not the cynics, would bestir themselves to improve if school districts took professional development seriously? If we lack that threshold confidence in the nation's teaching corps, then no intervention imaginable will transform them into the kinds of educators needed to equip our country for the twenty-first century. Simply put, there's no teacher-proof curriculum for cultivating higher order skills in kids.[45]

Price may be right; the vast majority of teachers may respond with energy and enthusiasm to opportunities to work with their colleagues or to participate in high-quality professional development. The success of the National Writing Project over the past fifteen years and the more recent efforts of the National Council of Teachers of Mathematics have demonstrated that broad-scale changes in practice are possible. However, these national initiatives have been underway for more than a decade and still have not affected the practice of many language arts and mathematics teachers. Not all teachers are well-connected to their profession. In some communities, the majority of teachers hold second jobs. Some are set in their ways and would prefer retirement to change. There are a host of unanswered questions about the efficacy of various incentives with these hard-to-reach groups. Which incentives work best with various groups of teachers? What roles might unions, professional organizations, or teacher networks play in reaching disaffected or uncommitted teachers? What are the "natural channels" for disseminating information about good practice and engaging teachers in dialogues about these practices? Designing incentives that will effectively engage the vast majority of teachers in challenging professional development requires answers to these questions.

Public Support

It has been difficult to generate public support for increased investment in professional development. It is often said that professional development lacks political "legs," and certainly many legislators see it as a low-priority, special-interest agenda. Some are opposed to public expenditures on teacher development, subscribing to the view that certified teachers should be prepared to do their jobs before they are hired, and that if they are not, they should be dismissed or acquire the necessary skills at their own expense. Others fear that more time for professional development will reduce contact time with students and actually weaken rather than strengthen the instructional process. Many parents object to professional development if it means that their children's teachers will be out of the classroom. School board members and administrators typically claim to support professional development for their employees, but expenditures so identified are almost always among the first items to be cut from budgets. Cutting professional development does not mean a loss of jobs or a reduction in services for children. And, along with many teachers, some are convinced that investments in professional development have not produced significant improvements in the schools. If professional development does not improve classroom practice and student performance, why make the investment? Even those who believe that more investment is needed often express frustration with the way resources are currently being used. Why should parents and community members be expected to pay higher taxes to support these activities, when they fre-

quently hear from teachers that they were a waste of time?

State leaders must change the attitudes of taxpayers, parents, teachers, administrators, and school board members and build support for high-quality professional development at the local level. If they do not, their efforts to reform public education are likely to fail. The first step toward building increased support for professional development is to assess the current use of funds and the effectiveness of existing policies and practices. Educators and policymakers also might examine the human resource development policies and practices of successful corporations. Corporate leaders recognize that they must invest in their workforce in order to raise productivity and remain competitive. But they also recognize that the experiences must be work-related, well-designed, and linked to the individual's skills and work assignments, and they acknowledge that the use of new skills and techniques requires support and incentives in the workplace.

7 State Policies and Professional Development

It is obvious that state policies have significant effects on the quantity and quality of professional development and can shape its scope and intensity. They also can influence or determine who sets the professional development agenda, who provides services, the nature of those services, and who participates in them. Unfortunately, the impacts of specific state policies on professional development have not been carefully examined. There is not much empirical evidence about the effects of state policies such as recertification requirements, the use of CEUs by local school districts, or mandated time allocations for in-service education on the quality, cost, or accessibility of professional development. Even less is known about how specific state policies affect the actual skills and practices of teachers. Furthermore, the effects of similar policies may vary from state to state because of the variations in their institutional, political, or fiscal contexts. At this point, the paucity of research evidence prevents policymakers from assessing policy options by simply reviewing the available evidence on their effects or costs.

Given the inadequate state of knowledge about the effects of state policies on professional development and teaching, how should policymakers proceed? First, they should assemble the best available information about the policies and programs in place in their state, filling in the gaps in the available data with the perceptions of various stakeholders and experts. A framework for conducting such a review is presented later in this chapter. Second, they should apply a set of principles derived from research, expert opinion, and the views of practitioners such as those presented earlier to their current policies to determine whether they are based on plausible theories of teacher development and change. If they are not, then they should consider alternative approaches and review them in a similar manner. A framework for developing and reviewing alternatives is also presented in this chapter. Third, they should look closely at who benefits from current policies and programs and where the greatest needs are, and then determine how best to provide an effective and equitable system of teacher development.

The Conventional Wisdom

The policy theory that has shaped most state action on professional development over the past decade can be summed up in the following propositions.

- Professional development should focus on the growth, competence, and advancement of individual teachers.
- The best source of knowledge for improving teaching is university-generated research.
- If the demand for professional development is increased, an adequate supply will be produced.
- If teachers are regularly exposed to new ideas about pedagogy and subject matter, they will improve their practice on their own, and students will benefit.
- Salary increments and recertification requirements are sufficient incentives for professional growth.
- Districts and individual teachers are expected to share responsibility for paying for further training and education.
- The role of the state is to provide districts with funds, require teachers to pursue professional development to maintain their certification, and mandate training in special areas as needed to protect the interests of students and the public.

From this perspective, the fundamental policy problem is simply getting teachers to partici-

National Board Standards and Professional Development

In some school districts, educators are developing models for professional development based on the framework of the National Board for Professional Teaching Standards (NBPTS) for assessing excellence in teaching. One such project is a collaboration among the teachers and administrators of South Brunswick School District, researchers from the Educational Testing Service, and consultants from NBPTS.

During 1992-93, a group of nine teachers in grades five and six initiated the process by exploring the value of the NBPTS standards for assessing their own work as classroom teachers. A teacher from the district served as the project director. An oversight committee composed of the teacher-director, district administrators, and ETS researchers was responsible for guiding the process and for pulling together the implications emerging from the work.

The project began with a working conference for the core group of teachers, administrators, researchers, and NBPTS consultants. The board's standards were reviewed, with the expectation that teachers would use them as a framework for examining their classroom practice. Teachers met monthly in study groups to review ways in which evidence gathered from their classrooms—videotapes, work samples, and observational records—addressed the standards. They also discussed the implications for their practice.

ETS research staff observed the study groups and provided assistance in documenting and evaluating the results. They examined the development of the individual teacher as well as systemic consequences of the process. The teachers and researchers will identify critical issues affecting the use of the NBPTS standards and make specific recommendations to the district for broader implementation of professional development that is centered around the standards.

pate in activities that will improve their content knowledge and pedagogical skills. Ensuring a supply of "good" learning opportunities is at best a secondary consideration. The lack of fit between the "knowledge base" and actual problems teachers face in their context is generally ignored. The complexity, uncertainty, and variable conditions of teaching and the problems of motivating teachers to change their practice and supporting their efforts to change are seldom addressed. If the purpose of professional development is to improve the practice of teaching in ways that lead to improved student performance, it is obvious that the policy problem is much more complex than has been assumed. These complexities undermine the effectiveness of a simple technology transfer approach to professional development. The design principles described earlier suggest very different approaches to professional development than those now taken in most states and school districts.

A Framework for Analysis of Policy Options

McDonnell and Elmore have developed a useful framework for categorizing policy instruments that can help policymakers develop and assess alternative approaches to professional development policy.[46] They contend that all policies should be treated as testable theories, and they define policy instruments as the generic approaches to social intervention that are used in various combinations in all policy initiatives. They use the term "policy design" to refer to the process of identifying a problem to be solved and selecting policy instruments with the most potential to produce the desired effects. Thus their framework provides policymakers with the building blocks needed to craft multidimensional policies to address complex problems such as the professional development of teachers.

According to McDonnell and Elmore, the four generic classes of policy instruments are the following.[47]

- *Mandates:* rules governing the actions of individuals and agencies, intended to produce compliance. Examples include Chapter 1 regulations, recertification requirements, health and safety rules, and district professional development plans.
- *Inducements:* the transfer of money or other benefits to individuals or agencies in exchange for certain actions. Examples include competitive grants, waivers of regulations, and stipends to teachers to participate in summer programs.
- *Capacity-building:* the transfer of money for the purpose of investment in material, intellectual, or human resources. Examples include tuition reimbursement for teachers, state aid to immediate units, and development of training materials.

- *System-changing:* the transfer of authority among individuals and agencies to alter the system by which public goods and services are delivered. Examples include vouchers, the addition of new providers such as teacher networks, and decentralization of professional development to school staffs.

In Table 2, the McDonnell and Elmore framework is applied to professional development policies. This presentation rearranges their original formulation of the framework by beginning with classes of problems to be addressed rather than the classes of policy instruments. Table 2 focuses attention on the linkages among problem definitions, policy instruments, implementation strategies, and desired effects. It also draws attention to the possibility that a mix of policy instruments may be the best approach to the complex issues of professional development.

There are at least two other important instruments available to policymakers that McDonnell and Elmore neglected to include in their framework. The first is often referred to as "using the bully pulpit." It may be stretching the concept of a policy instrument somewhat to include speeches, but state leaders can reshape public priorities through their advocacy and their forceful support for particular initiatives. In the case of professional development, advocacy by state leaders might build increased public support for policies fostering teacher development. Because more than 80 percent of the investment in professional development occurs at the local level, gaining the support of local board members, taxpayers, and parents is critical to ensuring that adequate opportunities are provided and that they are effective.

The second neglected instrument is the "public idea." Closely related to advocacy, public ideas focus attention on new ways of thinking about a problem rather than simply winning more support for existing policies. Public ideas are big ideas about what is good for society that can redefine the public's perception of a problem. These ideas influence the actions of individuals and organizations when they are advanced by leaders and may ultimately shape public policy. Public ideas guide public action in the same way that Kuhn's "paradigms" guide scientific inquiry.[48] A new idea may challenge society's definition of a problem, shift the focus of responsibility for solving it, or suggest a different mix of policy instruments for addressing it.

Treating alcoholism as a disease, controlling litter on the highways, recycling bottles and cans, and eliminating smoking are examples of "public ideas" that have altered public behavior and ultimately produced policy changes. Examples relevant to professional development might include using peer review instead of administrative supervision, reducing contact time for teachers, granting the profession control over certification and recertification processes, giving school faculties control of professional development funds, and using some schools as teaching institutions to prepare teachers. All of these ideas require fundamental changes in public understandings about the role of teachers.

Public ideas involve persuasion, so that they involve advocacy and the use of the "bully pulpit." New ideas often run ahead of the availability of supporting evidence and they must overcome the inertia of conventional wisdom. Attitudes must be changed to permit action based on a new idea. This requires appeals to emotions as well as rational arguments. This is true in science and it is true in policy formulation.

Each type of policy instrument makes different assumptions about the problem being addressed, the costs and who should bear them, and the desired effects. For example, the use of mandates and inducements assumes that capacity exists to do what is must be done in order to achieve policy goals. On the other hand, though both capacity-building and system-changing instruments acknowledge that existing capacity is inadequate to the task, the former approach assumes that strengthening existing institutions will suffice while the latter assumes that more fundamental changes are needed. Each type of instrument has advan-

Table 2
Problems in Professional Development and Policy Instruments

Policy Problems	*Policy Instruments*	*Examples*	*Expected Effects*
Inadequate teacher participation; inadequate services; inadequate local investment in professional development; and lack of standards.	Mandates	Required in-service days, recertification requirements, teacher evaluation systems, teacher improvement plans, local budget set-asides, and standards for professional development.	Compliance, increased teacher participation, and higher quality local activities, but effects are likely to vary with local choices and teacher interests.
Lack of participation by experienced teachers or teachers in particular subject areas; inadequate high-quality opportunities; and low utilization of opportunities.	Inducements	Salary increments, set-aside funds for professional development, grants for institutes and special programs, sabbaticals, teacher recognition programs, new roles for teachers, and support for National Board certification.	Increases in both demand for and supply of professional development. Effects will vary with the quality of opportunities, intensity at the school level, and teacher perceptions of fairness and utility.
Lack of appropriate programs; lack of access; and inadequate opportunities to meet demands or needs.	Capacity-building Activities	Teacher academies, expansion of services from intermediate units, training for local staff developers, peer mentoring, and use of technology to provide access.	Increase in capacity in the long term, but the payoff may be slower. May not create sufficient supply and may not affect local utilization of professional development.
Institutions are not producing the desired activities and are judged to be unable to do so.	System-changing Strategies	Support for teacher networks, professional development schools, school-based staff development, professional standards boards for teachers, career ladders, and on-the-job training in teams.	New forms will appear and may have desired effects but will create new problems such as access, financing, and conflicts over authority.

tages and disadvantages. They can be used in combination to address different aspects of complex problems, producing effects that may be well beyond the power of a single instrument. The McDonnell-Elmore typology helps focus policymakers' attention on the full range of their policy options, and it can help them design or select strategies that have a good fit with the problem they are trying to address.

State Policies and Professional Development

States have used **mandates** to promote professional development, such as recertification rules requiring teachers to earn so many credits or CEUs within a specific period or requiring school districts to offer in-service programs. Mandates are popular with state policymakers because the costs are usually borne by individuals or by local districts rather than by the state. Mandates also fit well with the remedial mindset, which views professional development as a means of forcing incompetent or burned out teachers to do something to improve their performance or seek other employment. Typically, however, state mandates have produced increased activity at local expense but have had only limited impact on teacher or school performance.

Inducements for teachers to participate in specific kinds of professional development have also been frequently used. The link between salary increments for teachers and the college credits and advanced degrees that they earn is an expensive inducement that has been in place so long that it seems politically untouchable. It is taken for granted and often overlooked in discussions of the resources allocated to professional development. Other inducements include grants to teachers, groups of teachers, schools, or districts willing to undertake specified professional development activities. The costs of inducements

tend to be borne by those who enact the policies; hence they are usually less popular with state policymakers.

State policymakers also have supported **capacity-building** activities to improve the supply of high-quality professional development. However, like inducements, these are usually costly options and the costs are usually borne by the initiator. In the 1980s, some states invested in the expansion of intermediate units and the creation of statewide training academies. There was also support in some states for the training of local staff development personnel. These initiatives were reduced in scale during the recession of the 1990s. Investments in capacity-building are often lost in times of budget constraint when highly trained personnel are laid off.

More recently, the attention of state policymakers has shifted from inducements and capacity-building to **system-changing** strategies such as school-based staff development, the use of experienced teachers as mentors for beginning teachers, the development of subject-matter networks using trained teachers as "coaches," and the creation of professional development schools.* McDonnell and Elmore contend that policymakers are more likely to use mandates or system-changing instruments when there are constraints on resources, so it is understandable why the latter would be popular with state policymakers in the 1990s. Because professional development is viewed as a frill rather than as an investment by many state policymakers, it may be easier to garner political support for mandates that require teachers or school districts to do something or for changes in the system that alter the locus of decisions or the form of professional development without any direct cost to the state. However, policymakers also turn to system-changing strategies when they lack confidence in the ability of existing institutions to produce the desired effects.

There is considerable variation in the approaches states have taken to provide staff development for teachers. The variety of means is matched by the variation in the funding mechanisms. Table 3 provides some examples of recent state attempts to strengthen professional development. They are classified according to McDonnell and Elmore's original four categories of policy instruments.**

Determining how well the overall policies in any given state match up with the design principles presented earlier requires much more information. For example, raising recertification requirements typically just increases the quantity of professional development activity. But what if states also adopted standards for providers? The effects of raising recertification requirements might be quite different, depending on how these related policies influenced the forms of professional development provided for teachers and how these experiences were perceived by teachers. If state policymakers also permitted teacher-initiated professional activities such as networks or study groups or activities such as serving as assessors or as members of curriculum development committees to "count" toward recertification, the results might be dramatically different. Ensuring high-quality professional development may require combi-

*Professional development or professional practice schools are public schools that serve as locations for preservice and/or in-service education for teachers or other education professionals. They are usually operated jointly by one or more districts and a institution of higher education. Like teaching hospitals, they provide clinical education for teachers working under the guidance of expert practitioners and teacher education faculty. They provide a place for novices to learn to teach and experienced teachers to improve their skills, and they could be a mechanism for the development, discussion, and diffusion of professional standards for teaching.

**These examples are meant to illustrate the types of policy instruments. They do not describe the full range of activities in the states listed.

Table 3
Illustrations of Policy Instruments Applied to Professional Development[49]

Policy Instrument	*State*	*Program Example*
Mandate	Connecticut	Teachers must complete nine units of continuing education every five years to renew their certification. Districts are required to offer sufficient professional development to enable teachers to meet this requirement at no cost to themselves. The state aid for the program was eliminated in 1990-91.
	Kentucky	Schools are required to develop school professional development plans. These plans are reviewed by the Kentucky Department of Education using six standards that require focus, broad participation, and linkage to school needs.
	South Dakota	The state provided districts with $225 per teacher to support three days of curriculum and staff development at the start of the school year. The cost in 1990-91 was $2 million (1.4 percent of total school aid).
Inducement	Kansas	Districts with approved in-service plans were entitled to additional state aid equivalent to the lesser of .25 of 1 percent of their net current expense budget or 50 percent of the actual expense in maintaining an approved in-service program.
	Missouri	The state has created a pool of funds equivalent to 1 percent of the state's foundation level times the number of students in the state and set it aside for various improvement activities, including regional professional development centers.
	North Carolina	Teachers who achieve National Board certification will be given 4 percent salary increases.
Capacity-building	California	The mentor program authorized teachers with outstanding ability to serve as "mentors" to other teachers, particularly new teachers. Each mentor received a stipend of $4,300 and his or her district received additional funds for travel, substitute teachers, and support. Total funding in 1990-91 was $65.5 million (less than 1 percent of the state's total school aid).
	Oregon	A Professional Development Center and $6.2 million in competitive restructuring grants were established to provide professional development to teachers.
System-changing	California	To support implementation of the new state curricular frameworks, subject-matter collaboratives were created. They offered training to teams of teachers from participating schools and support from networks of trained teacher leaders.
	Kentucky	The new funding formula provides each district with an amount per pupil for professional development. The amount has been increased annually, reaching $23 per pupil for 1994-95. The funds go to the school level for allocation.
	Missouri	Districts are required to set aside 1 percent of their foundation budgets for school-based staff development. The use of the funds is to be determined by school-level teams based on local needs assessment.
	Vermont	All teachers are required to develop professional improvement plans, which must be reviewed and approved by local professional standards boards. These boards use criteria established by the state professional standards board. Both the local and statewide boards have teacher majorities.

nations of policies that address issues of demand and supply, quality and content, focus and intensity, and governance and linkage to the workplace.

Effects of Other State Policies

State policies not directly aimed at professional development also may have significant impact on it. For example, the level of state aid to districts can affect professional development if it is either inadequate or reduced, as professional development is often among the first items to be cut from local budgets. State aid policies can have direct effects when there are set-aside funds for professional development as in Kentucky, Minnesota, and Missouri. State testing policies can generate a high demand for professional development on strategies for raising student performance on the tests.

State administrative decisions also can affect the amount and character of the professional development available to teachers. For example, the use of teachers to perform tasks such as developing curricular frameworks or assessment tasks, scoring state assessments, conducting school reviews, or mentoring new teachers can significantly affect the supply and quality of opportunities. The decisions by state policymakers to use teachers as scorers of portfolios in Vermont or as math and science trainers in Kentucky are examples of real tasks being used as professional development opportunities. In these and similar instances, the effects on teachers' participation might be more dramatic if the states permitted teachers to count such experiences toward recertification.

A Framework for Evaluating Professional Development Policies and Programs

The checklist presented in Table 4 raises some key questions that policymakers ought to ask when conducting reviews of the professional development being provided for teachers in their states or districts. Answering these questions should help policymakers assess the appropriateness, quality, and accessibility of existing opportunities as well as provide a basis for determining the policy changes, new initiatives, or resource reallocations required to provide the professional development needed to support school reforms.

A School-Corporate-University Collaborative

The Merck Institute for Science Education (MISE), a nonprofit organization supported by Merck & Co. Inc., the international pharmaceutical company, has joined the University of Pennsylvania and the school district of Philadelphia in a five-year effort to improve science teaching in Philadelphia's elementary schools. Funded by a National Science Foundation grant, the project is preparing a cadre of lead teachers who will serve as mentors to their peers and change agents in their schools. The goal is to motivate students from historically underrepresented groups to choose science and technology as their fields of study and future careers.

The collaborative provides experiences for teachers that are critical to gaining competence in science, including doing science, constructing scientific ideas, integrating science and language, using technology, working collaboratively, and thinking creatively. The primary strategy is to develop a critical mass of competence and energy in a school site and then to support the process of instructional change. Teams of teachers are recruited from schools on a competitive basis. The first group of lead teachers attended a three-week institute at the University of Pennsylvania in the summer of 1994. They studied themes in science and, using the laboratory facilities of the university, worked with undergraduate science and engineering students to develop hands-on lessons for elementary school students. They also developed extension activities linking science and language arts. A year-long followup seminar is supporting the teachers as they implement a hands-on curriculum, work with new computer technology, and collaborate with volunteers from Merck on science projects.

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Table 4

Review of Professional Development Policies and Practices

How is professional development defined by teachers, by district administrators, by state officials, and by legislators? How is it defined in collective bargaining agreements and in law and regulation?

- What activities fall within these definitions? What falls outside of them?
- Are prevailing definitions consistent with current thought about high-quality professional development?
- How much responsibility for professional development is placed on the teacher, on the school, and on the district?
- Is participation in professional tasks that leads to the acquisition of new knowledge or skills treated as professional development?

What growth opportunities are being provided for teachers?

- Is support provided for beginning teachers?
- Are growth opportunities built into teachers' workdays?
- Do teachers have regular opportunities to work together in most schools?
- Is full advantage being taken of professional or administrative tasks requiring significant skills that might be performed by teachers?
- Do the state colleges and universities provide appropriate courses that are accessible to all teachers?
- Who decides the amount and content of professional development?
- How much time is set aside for professional development?
- Do these opportunities vary across districts and across grade levels within districts?

What are the incentives for teachers to participate in professional development and to improve their practice?

- Is professional development linked to personnel evaluation?
- Is professional development linked to recertification?
- Do districts reimburse college tuition for graduate study?
- Are salary increments linked to professional development?
- Does professional growth bring increased responsibility, status, or recognition?
- How do these incentives affect teachers in different locales, grade levels, or career stages?

Who sponsors and provides formal professional development?

- Schools?
- Districts?
- Intermediate units?
- Institutions of higher education?
- State education agencies?
- Professional associations?

What is known about the effects of existing policies and programs?

- Are evaluations conducted?
- Are there data on participation rates by categories of activity and teachers?
- Are there data linking specific experiences with changes in practice and/or improvements in student performance?
- Are there systematic inequities in access?

Table 4
Review of Professional Development Policies and Practices (continued)

How is professional development planned and coordinated?

- Is there a state plan(s) and are there state priorities?
- Do schools and/or districts have to develop plans?
- Are local professional development activities tied to school improvement?
- What are the criteria for approving local plans?
- Is there coordination of activities within the state agency?
- Is there coordination between K-12 and higher education?
- Is there coordination among providers?

What is regarded as "good practice" in professional development?

- Are there "standards" or guidelines?
- What do the outstanding districts do?
- Who are regarded as the "best" providers?
- What activities do teachers feel have the most value?

37

How is professional development funded?

- How much is allocated for direct state and local expenditures on professional development?
- What is the cost of tuition reimbursements? Of conference and workshop expenses?
- What is the cost of teacher salary increments resulting from awards of credits, CEUs, or degrees?
- How much do teachers personally spend on professional development?
- How much instructional time is lost annually?
- What state subsidies are given to providers of professional development?

How is professional development linked to the improvement of teaching and to the changes in standards, curriculum, and assessment envisioned by systemic reform?

- Are teachers required to develop professional improvement plans?
- Are funds available to support teacher and school initiatives in professional development?
- Are teacher salary increments dependent on the job-relatedness of the activities?
- Are state initiatives to set standards and develop curriculum frameworks and new assessments supported by appropriate professional development?
- Does the state collaborate with teachers' organizations to provide professional development?

To what extent are current professional development activities consistent with the principles set forth earlier in the report? These principles, in brief, are that professional development programs:

- should not "do not do unto teachers what you would not have teachers do unto students";
- should stimulate and support site-based initiatives;
- should support teacher initiatives as well as school or district initiatives;
- should reflect the knowledge base on teaching;
- should offer teachers opportunities to be active learners;
- should offer intellectual engagement with ideas, materials, and colleagues;
- should demonstrate respect for teachers as professionals and as adult learners;
- should provide sufficient time and followup support for teachers to master new strategies and content and integrate them into their practice; and
- should be accessible and inclusive.

8 Some Promising Alternatives

Fortunately, policymakers are attending to some promising alternatives to the dreary regimen of in-service conferences and workshops that most teachers experience as their primary form of professional development. These alternatives appear to be more consistent with the principles of effective professional development proposed earlier and offer support for the reforms sought by state policymakers. Among these "new" approaches to professional development are joint work such as team teaching and job enrichment, teacher networks and subject-based collaboratives, collaboratives between universities and districts, professional development schools, preparation for National Board certification, teacher participation in research on instruction and learning, and telecommunications networks that support professional exchange. Obviously, not all of these ideas are new. Teaming and networks, for example, are old ideas whose professional development potential is only now being fully appreciated.

38

Joint Work and Job Enrichment

Joint work refers to shared responsibility for instruction, curriculum development, or other tasks that create interdependence among teachers and require collective action.[50] Joint work is usually thought of as a means of reforming instruction, school organization, or governance rather than as a professional development strategy. However, joint work can create new opportunities for learning on the job because it provides opportunities for productive exchange among teachers. Although its most common form is teaming, joint work can occur among teachers who work in departments, a common grade level, or school councils. Its effects on classroom practice stem from reorganizing tasks, time, and resources in ways that overcome the norms of autonomy and privacy that characterize teaching.

There is a growing body of research demonstrating the importance of collegiality to teachers' willingness to try new approaches, share their experience, and reflect on their practice.[51] McLaughlin and Talbert found that three key elements contribute to norms of collegiality: the existence of a professional community; the presence of some mechanism for collaborative problemsolving; and teachers' sense of influence and control over their work. Joint work can provide all three of these elements. Under the best circumstances, where collegiality is combined with the authority, time, and resources to make improvements in programs and practices, structures for joint work among teachers can be powerful vehicles for continuous inquiry into practice and for promoting professional growth through dialogue and sharing.

To many educators and local policymakers, teaming is a well-understood reform in school organization. Although it has been primarily used in middle schools, the concept can be used at other levels. It requires opportunities for staff to work together on a regular basis, some training, assistance in redesigning school schedules, and sometimes additional staffing to provide the time for teams to meet. There is evidence that teaming contributes to increased sharing of materials and dialogue about instruction, teachers' willingness to try new approaches, improved staff morale and attendance, lower staff turnover, more coherent strategies for dealing with students, and stronger bonding between teachers and students.[52] However, these benefits are not guaranteed. Little warns that without incentives or assignment of tasks that require cooperation, teachers on teams

may avoid dealing with instructional issues and maintain their own autonomy.[53] There are other potential problems associated with joint work. For example, teaming can surface conflicts among teachers and make factions in a school more visible, giving teachers additional reasons to avoid addressing core issues of pedagogy and curriculum. However, the evidence suggests that the benefits are significant and that the problems can be overcome. Teaming and other forms of joint work have enormous potential to serve as vehicles for promoting the dialogue, sharing, and reflection that is critical to professional growth and improvement of practice.

Job enrichment refers to the expansion of a teachers' work in ways that involve learning new skills or taking on new responsibilities. New assignments involving interesting tasks stimulate learning and enhance skills. When there is important work to do that requires new understandings or skills, motivation to learn tends to be high. Often teachers who have had the opportunity to take on a new task say, "That was the best professional development experience of my life." For example, when teachers are asked to score portfolios, they learn a great deal about assessment procedures, but they also learn about applying standards in the classroom, managing the portfolio process, and motivating children to produce their best work.[54] Researchers studying Vermont's innovative portfolio assessment program found that it stimulated positive changes in instructional practice.[55] Research on mentoring has also shown that the mentor teachers benefit from the experience of helping new teachers. Similarly, when teachers are asked to work on curriculum, they often deepen their understanding of the subject-matter content.[56]

Learning acquired through experiences other than formal education is not always recognized and valued. For example, in most states, teachers are required to accumulate a specified number of credits or CEUs to maintain their certification, but the knowledge and skills they gain from participation in professional activities is generally not taken into consideration. Only recently, and only in a limited number of instances, has job enrichment been recognized as a professional development strategy.[57] Vermont has involved teachers in the assessment of portfolios for a number of reasons, but a central one is that state policymakers recognize the value of the experience for teachers. Similarly, the College Board recognizes that teachers gain professionally when they serve on panels for the Advanced Placement Examinations. The New Standards Project recognizes the value of asking teachers to develop performance tasks and to serve as assessors.

Teacher Networks and Collaboratives

Networks and collaboratives are loosely knit professional structures that create opportunities for interaction among teachers. They have been used successfully to foster and support changes in practices, and their advocates believe that they contribute to enhanced teacher professionalism. They differ from joint work because they are based on the common interests and work assignments of teachers rather than shared responsibilities in the workplace. Participation is usually voluntary and the membership crosses organizational boundaries.

Networks and collaboratives are not well-defined forms, and the terms are used to refer to a variety of diverse activities. The Writing Project, the Urban Math Collaboratives, the Puget Sound Education Consortium, the subject-area networks fostered and supported by the California Department of Education, the Vermont Regional Assessment Networks, and the Foxfire Teachers Outreach Network are all described as teachers networks even though they serve a variety of purposes and constituencies. However, they do share some common characteristics. Many of them, for example, focus on specific subject matter and seek to deepen teachers' understanding of content and application of new teaching strategies. They offer both professional development and colleagueship.[58] Teachers gain access to a "professional community" in which their expertise and experience are respected,

and in which they can be active participants in professional discourse about improving practice.

Teachers organizations such as the state affiliates of the National Council of Teachers of Mathematics and the National Science Teachers Association have supported networks. In fact, the active members of these organizations constitute loose networks that could be strengthened to promote teacher development and school improvement. The QUEST project sponsored by the American Federation of Teachers and the Mastery in Learning Project sponsored by the National Education Association also make use of networks to share information about good practice. Teachers' organizations offer natural channels for the creation and support of networks because they already have high credibility with teachers, access to their members, and support meetings where network members can be convened.

Networks may create some new problems. When individual teachers become active in networks and engaged in improving their practice, they sometimes report difficulty in gaining support for the new strategies they are learning from their school colleagues. They may even find it difficult to try new approaches because of active opposition from their peers or their supervisors. Under these conditions, involvement in a network has the potential to reduce teachers' commitment to their schools. This is why some recommend participation of school teams or entire school staffs in networks rather than individual teachers.

The various state and regional writing projects offer the best evidence of the potential of teacher networks for changing classroom practice.[59] In slightly more than a decade, writing has re-emerged as a major component of the public school curriculum and the techniques of teaching writing developed and promoted by the projects are in wide use. Operated as collaboratives of university faculty and public school teachers, these projects have had a profound effect on the practice of teaching at all levels of the system. Positive results also have been demonstrated for the Urban Math Collaboratives and the California subject-matter networks.[60] Networks appear to have high credibility with teachers, offer safe environments for discussion of instruction, and can have positive effects on their motivation, professional knowledge, willingness to take risks, and commitment to improvement.

Collaborations Between Schools and Colleges

One of the common complaints among school reformers is that they do not receive enough assistance from higher education. Critics charge that higher education is not examining its admissions standards, not working hard enough to improve undergraduate education, not paying enough attention to the quality of teacher education, not adjusting their professional programs to fit the changing situations in schools, not offering the kinds courses that practicing teachers need or not making the courses accessible, and not helping schools implement reforms. Some believe that if colleges do get involved with school reform, it is often episodic, dependent on the personal interests of a few faculty and ending when their energy or interest waned. Or in some cases, the institutions may offer programs for small numbers of public school students, taking them out of the school setting rather than working to improve it.

Although there is substance to these complaints, there also have been examples of effective collaboration. The aforementioned writing projects are perhaps the best examples. There have been similar programs in mathematics and science, most of them supported by the National Science Foundation. However, most of these collaborations involved small numbers of faculty and were dependent on the availability of external funding. There now appears to be a trend toward breaking down the political and institutional barriers between schools and colleges to foster broader collaboration on educational improvement. Visionaries speak about creating a "K-16" system, a seamless web of education based on the principles of systemic reform. Others are content to talk about increased collaboration in areas of shared interest such as the professional development of teachers.

In many communities around the country, school districts and institutions of higher education are beginning to work together to strengthen professional development for teachers. The American Association of Higher Education (AAHE) has taken the lead in promoting these partnerships, encouraging the formation of community-based, "K-16" councils to develop standards-based professional development, disseminating information about these collaboratives, convening an annual conference on collaboration, and actively supporting their work in a number of communities. The Education Trust, an offshoot of AAHE, administers the Community Compacts program that is supporting collaboratives in five cities. The trust has also been awarded a federal grant to work on collaborative professional development in three cities: Philadelphia, Pueblo, and El Paso. In El Paso, educators, business leaders, local policymakers, and community leaders have formed a Community Compact that is sponsoring subject-matter institutes for teachers and supporting the development of leadership teams in area schools.

Carnegie Corporation of New York, the Ford Foundation, the Knight Foundation, The Pew Charitable Trusts, and other philanthropic organizations are supporting school and college collaboration on professional development. There are many local initiatives underway in various forms. Some initiatives, such as those in Connecticut, Ohio, Kentucky, Montana, and other states, are supported by the National Science Foundation. The National Center for Urban Partnerships is working with sixteen cities. Recruiting New Teachers, the Council of Great City Schools, and the Council of Great City Deans of Schools of Education are working together to improve the recruitment, induction, and professional development of teachers in urban areas.

Although these initiatives vary in size and focus and remain quite fragile, dependent in many instances on external funding and often still operating at the margins of the institutions, they hold great promise. Professional development opportunities cannot be provided in sufficient intensity and for sufficient numbers of teachers unless the schools and colleges work together.

Professional Development Schools

Typically operated as a collaborative venture of an institution of higher education and one or more school districts, professional development schools (PDSs) are roughly analogous to teaching hospitals. The concept of the professional development school was first advanced in reports issued by the Carnegie Forum on Education and the Economy and the Holmes Group in 1986.[61] Although much attention has been given to their role in the pre-service preparation of teachers, these new training institutions could also play an important role in professional development. In some PDSs, novice and experienced teachers have been teamed with university clinical faculty to improve their practice through observation, low-risk experimentation, reflection, and coaching. PDSs reinforce the image of teachers as professionals who work in a collaborative manner and take responsibility for improving their practice.

With the support of the Michigan Partnership, the College of Education at Michigan State University has established PDSs in a number of districts in Michigan. More than forty faculty are involved in working with school staffs to identify best practices, design clinical experiences for teachers, and make the changes in school organization needed to operate professional development schools. Other universities are following the lead of Michigan, and it is estimated that several hundred PDSs have been launched across the country. For example, Indiana University Northwest operates five professional development centers in cooperation with three school districts. In these centers, teachers work with university faculty in instructional teams responsible for demonstrating and disseminating new knowledge and coaching pre-service teachers.[62]

PDSs are a promising innovation. However, solid evidence of their long-term effects on

teachers' practice and effectiveness is not yet available. And they pose difficult issues for institutions of higher education and school districts. For example, they are likely to cost more than current approaches to pre-service and in-service education, and providing additional funds for these activities is not politically popular. PDSs may also raise concerns about the equity of workloads, compensation, and status within universities and school districts. They also raise questions from parents who may feel that students attending PDSs receive special treatment or have access to more instructional resources than other students. Furthermore, they pose logistical difficulties for rural schools and small school districts. Yet the enthusiastic response of teachers who have had the privilege of working in them and the early evidence on their effectiveness suggest that they deserve a full field trial.

42

National Board Certification

The National Board for Professional Teaching Standards is promoting the growth value of the reflection, analysis, and preparation required of candidates for its certification. It is working with teachers and national teacher organizations to establish standards and appropriate assessment procedures for the recognition of exemplary teachers.[63] The National Board is developing a national system of board certification for teachers in various specialty areas analogous to the existing system for recognizing the advanced skills of physicians. It hopes that the exemplary teachers who achieve "board certification" will be given special responsibilities commensurate with their abilities, such as mentoring beginning teachers or developing curriculum.

The year-long process of applying for board certification requires teachers to carefully document their practice, reflect on their strengths and weaknesses, and demonstrate specific knowledge and skill. They must develop a portfolio of their work that includes videotapes of lessons, samples of student work, testimony of peers, and their own analysis of their teaching. These materials are reviewed and judged by trained assessors. The candidates also go through an assessment center process in which they are asked to demonstrate their skills. Teachers who have participated in the field-testing of the board's certification process have described the experience as the best professional development that they have ever had.[64]

In addition to recognizing exceptional teachers, the National Board hopes that its standards will be used by states and local districts to guide the design of professional development programs and that the process of applying for "board certification" will itself be viewed by state and local policymakers as a valuable professional development experience. Mississippi and North Carolina have promised monetary rewards for teachers who achieve board certification. Other states have provided released time, assistance with assessment fees, and credit toward recertification. The National Board's standards for teaching are consistent with the reforms being sought in curriculum and instruction, but it is not clear how they will affect professional development. Although these new certification standards could shape the content of professional development and provide the focus that is so often missing, much depends on how teachers respond to the opportunity for board certification, the legitimacy that the National Board and its standards acquire as a result, and the responses of state and local policymakers.

Teachers as Institutional Researchers

Although there have been numerous attempts in the past at collaboration between university faculty and teachers on research projects, most of these efforts have addressed questions of interest to academic researchers rather than practitioners. Teachers often played subordinate roles in the research activity, helping university researchers collect data that they needed. More recently, however, university researchers and teachers have developed true partnerships that are addressing research questions of importance to the participating schools.[65] Some large school districts also are involving teachers in institutional research. Action research and discussions of data bearing on the effectiveness of practices are not

common in schools, nor are they usually considered to be forms of staff development. But research could be a vehicle for personal and organizational development and it should be encouraged.

Teachers seldom observe their peers or collect and analyze data about their success with students. They aren't encouraged to do so by prevailing school norms, their schedules, their job descriptions, or the education hierarchy that treats practitioners and researchers as separate and distinct classes. If teachers reflect on their practice or assess the impact of school policies or programs at all, they are likely to rely on anecdotes or unusual incidents rather than carefully collected and analyzed data. Systematic reflection, analysis, and experimentation have value because they advance understanding and can lead to better solutions to problems. There is considerable evidence that collection of data stimulates discussion, helps members of organizations define their problems, and leads to the development and implementation of changes in practice and policy that reduce or eliminate problems.[66]

Uses of Technology

There have been numerous efforts to provide professional development through television. The use of satellite dishes and interactive television makes it possible to convene large meetings without teachers leaving their schools. Although these video conferences generally have been no more successful than conventional in-service programs, television has also been used to link networks of schools working on common problems. It is also being used to provide teachers with opportunities to see other teachers using constructivist approaches with children like the ones in their school. Such "demonstration proofs" might help persuade teachers to take the risk of making changes themselves. These same television experiences could be used to help persuade parents that the new approaches have merit and will not harm their children.

Nebraska is using distance learning to provide professional development for teachers of mathematics as part of its State Systemic Initiative funded by the National Science Foundation. Teachers in rural schools have access to video presentations of teaching strategies, support materials, and an electronic network to help them teach algebra in the eighth grade. Elementary teachers can take a course in geometry for graduate credit over interactive television. Another video series is assisting teachers with the use of technology in the classroom and provides hands-on examples of how to use calculators, graphing calculators, computers, and electronic networks. Michigan is also utilizing television to demonstrate new approaches in the classroom.

Some states are enhancing the technological capabilities of schools by linking them with one another and with other institutions through fiber optics, computer modems, and satellite dishes. Computers are a relatively inexpensive way to link teachers; some regional networks of teachers are already linked by electronic mail. Statewide networks are under development in Kentucky and other states. These electronic networks can be vehicles for sharing information about successful lessons, classroom strategies, new assessment procedures, or sources of material. They appear to work best when they connect individuals who also have occasional opportunities to talk face-to-face, such as members of subject-matter associations or teacher collaboratives.

These alternatives are described as promising because evidence of their effects on the practice of teaching and information about the conditions under which they are most effective are limited or incomplete. Although the amount and strength of evidence varies among the alternatives considered here, they all should be treated as theories to be tested rather than proven ideas whose benefits are known and certain. Their actual effects on practice may not always measure up to the claims of their promoters or may vary with conditions yet to be understood. Policymakers should consider these options, carefully examine the claims made by their advocates, review the available evidence, and exercising appropriate caution in their commitments to any particular strategy, decide on the best mix of strategies given their reform agendas, context, and resources.

9 Implications for States

Given these and other options for improving professional development for teachers, what steps should state policymakers be taking? First, they should examine the issues confronting professional development and reach some consensus about what must be achieved. The central issues of professional development that should be addressed by state policymakers are the following.

- Focusing professional development on core problems of teaching and learning. Teachers need more opportunities to become intellectually engaged with their subject matter and to deepen their understandings of key concepts. They need opportunities to try new approaches in environments that are supportive. This means larger roles for higher education and teacher organizations and new relationships among higher education, the profession, and the schools.
- Balancing individual and organization interests in professional development and restructuring incentives so that they are more closely aligned. Professional development arrangements should support schoolwide improvement, stimulate individual growth and engagement in teaching, and support career advancement.
- Embedding more professional development in the workplace so that it is more closely related to teachers' work experience. Teachers should have access to their colleagues and be encouraged to share, discuss, and reflect on their practice. The norms of isolation and privacy in schools must be broken down. Time must be provided for these collegial activities.
- Ensuring that high-quality professional development opportunities are accessible to teachers who serve the most vulnerable students—the children of the poor, of isolated minorities, of immigrant families, and others who are at high risk of failure in the schools. Although high-quality opportunities should be accessible to all teachers, those who have been underserved in the past and who face the most difficult educational challenges should receive priority.
- Improving the productivity of professional development. We cannot afford the laissez-faire, low-quality approach that has been taken to professional development. We need standards for schools and for providers, technical assistance in design and implementation, and monitoring to ensure that funds are well-used. This is especially important in low-performing schools.

Given these policy goals, there are clearly some actions that state policymakers should avoid. Among these are the following.

- Expanding the fiscal and human resources devoted to the current system of professional development without attending to improvements in quality. Simply providing more time and money to expand current activities will not ensure broad-scale improvement in teaching and learning. Policymakers should insist on reforms in professional development and on the reallocation of the resources currently being invested before they agree to make additional investments.
- Making heavy investments in any single approach to professional development. Although there are some promising initiatives underway, too little is known about their effectiveness to merit statewide commitments to a single strategy at this point, and different strategies are likely to be needed for different purposes and different groups of teachers. Policymakers must avoid being taken in by well-intended reformers

who claim that their solution to the professional development problem is the panacea. Instead, they should treat all professional development strategies as testable hypotheses. A mix of general state guidance and assistance, restructuring of incentives, carefully designed and evaluated pilot programs, improvements in local staff development, and state support for local and regional initiatives seems to be most appropriate at this juncture.

- Focusing solely on the short-run, immediate needs generated by the implementation of school reforms. Improving teaching is a long-term problem. A series of workshops or three additional in-service days a year will not make up for inadequate subject-matter knowledge or professional training. A focus on the short term can undermine long-term investments. For example, a new assessment system may not motivate teachers to take the additional math and science courses they need if the opportunities provided and the incentives offered emphasize only short-run, quick fixes to improve student performance on the state assessment.

What positive steps should state policymakers be taking to push professional development in the right direction? There are several areas in which action by state leaders is urgently needed.

Increasing Awareness Among Education Leaders

State policymakers should reach out to key stakeholders such as local policymakers, school administrators, teacher leaders, and university faculty and engage them in extended discussions of the adequacy of existing professional development opportunities and the alternatives. They may find that they have to convince these audiences that new forms of professional development are needed to provide effective support for the reforms desired in standards, curriculum, and instruction. There is considerable inertia in public education and many are comfortable with continuing the familiar forms of professional development.

Increasing Public Support and Awareness

The public also must be convinced that new forms of professional development are needed and that time and money should be allocated to support them. Parental objections to teachers being out of the classroom and to reductions in direct instructional time remain major obstacles to improving professional development. Because more than 80 percent of the existing professional development funds are locally controlled, the opinions and priorities of local communities and their school boards are important.

Reviewing Policies and Practice

State policymakers should take advantage of new federal initiatives and initiate a full review of the policies, practices, and programs that shape professional development in their state. An earlier chapter provides a framework for such a review. This would help shift the focus of policy development from simply the amount of time and money provided to issues of content and quality. A thorough policy review is essential to determine what changes in structures and incentives, if any, are needed to support the reform agenda in a particular state.

Setting Standards and Priorities

Standards are needed to guide both state and local professional development activities. If state policymakers adopt guidelines for the design, character, conduct, and content of professional development that are based on input from educators and linked to state performance and content standards, they could enhance the likelihood that the time and resources dedicated to professional development are put to good use. The design principles suggested earlier might be a good place to begin.

Standards are also needed for providers. The market for professional development services is an unregulated market in which many public and private providers compete for professional development funds. The quality of their services varies widely. To become more effective consumers, school and district personnel

need guidelines for evaluating the quality of prospective providers. Priorities also must be set because the needs will almost always exceed the resources and the opportunities. State policymakers must provide some focus for professional development in order to support the changes sought in teaching and learning.

Providing More Time

States must increase the time available for teacher interaction and professional development. The easiest legislative approach to this problem would be to increase the number of days districts can use for in-service training or to increase funding for in-service training so that more time can be "purchased" from teachers for after-school or summer work. By themselves, however, such actions are likely to increase activity without altering its quality, relevance, or impact. Nevertheless, the provision of more time is essential. Watts and Castle outline five approaches that have been used to create more time for professional development.[67]

- Freeing up time by using substitutes and early release of students. This is the most common approach, but it provides only limited amounts of time and is often resented by parents.
- Purchasing time by using permanent substitutes, retirees, and compensation for weekends or summer work. This can be expensive, it is sporadic, and some teachers will not participate on weekends or during the summer.
- Scheduling time by providing common planning time for teachers working with the same children or teaching the same grade on a regular basis. This is commonly done in schools using instructional teams, but it could be done in more schools if assistance was provided with scheduling. In some cases, support will be needed for small increases in staff.
- Restructuring time by permanently altering the teaching schedule, school day, or school calendar. This has serious implications for busing, union contracts, facilities maintenance and improvement, state regulations, and budgets. It also means changing public expectations. As a consequence, few schools or districts have taken this approach, though it offers a long-run solution to the time problem.
- Making better use of available time and staff. Some school leaders have re-examined how teacher time is now used and reduced their noninstructional responsibilities and reassigned personnel to free teachers for regular meetings and professional development.

Reducing teachers' workloads and contact time is yet another option. In higher education, classes are typically not expected to meet daily and faculty rarely teach more than two or three classes a semester. In Japan and China, teachers typically spend only three to four hours in the classroom and have the remainder of the day for professional work.[68] Drawing from these precedents, more time might be found for American public school teachers by:[69]

- substituting television for regular instruction occasionally, using reformatted Public Broadcasting System programming to supplement regular instruction;
- using adult volunteers or older students to provide extracurricular activities such as clubs, societies, or intramural sports for children;
- using occasional large classes for special topics or for exposure to the arts or presentations by outside "experts";
- using higher order assignments and independent study to let students pursue projects on their own in or outside of school; and
- involving more students in community service activities.

Strengthening Teacher Roles

States also could take steps to increase the amount of teacher involvement in the planning and delivery of professional development. The 1990 Carnegie Survey found that only 11 percent of teachers reported that they were "deeply" involved in planning in-service training in their schools. Fifty-seven percent said teachers were only slightly involved or not involved at all. The failure to involve teachers in planning undermines the legitimacy and efficacy of professional development. The related failure to use exemplary teachers to lead professional development wastes talent, increases costs, and contributes to the division between research and practice. States might encourage increased teacher involvement in planning and delivering professional development by doing the following.

- *Requiring local districts to involve staff in planning staff development.* This approach might lead to more change in form than in substance, leaving teachers feeling frustrated. However, there are interesting variations on this approach that do transfer more responsibility to teachers. For example, Vermont created local professional standards councils that have responsibility for approving each teacher's personal improvement plan. These plans are necessary for recertification.
- *Linking professional development to school-based management and shifting both the responsibility and the funds to the school site.* This would ensure the involvement of at least some teachers. The effects on professional development would probably depend on how well the school-based management strategy works overall. Schools might be required to develop long-term professional development plans with input from teachers and formal sign-off from the faculty. State grants might be awarded to schools with the best designs to develop good models and foster quality.
- *Involving teachers in setting standards for professional development and recertification.* Teachers will ensure that the standards are relevant and workable. Their participation in reviewing local plans for professional development and recertification applications will ensure that the standards are accepted by the profession and enforced.

Supporting Local Adoption or Demonstrations of Promising Approaches

The seven alternative approaches to professional development described earlier are sufficiently promising to warrant state support for local initiatives or the implementation of demonstration projects. Some of the obvious possibilities are state support for the following.

- *Use of teacher teams.* By encouraging school boards to provide time for teams to meet, providing grants for schools to restructure, helping administrators solve scheduling problems, and providing appropriate training, states could hasten the trend toward team teaching.
- *Teacher centers.* A reform from a previous era that has survived because it has worked so well in some places, teacher centers employ former or current teachers to coach or assist their peers. New York City's Teacher Center has been in existence for almost fifteen years. It provides classroom support from teachers who have no evaluative responsibilities. They go into classrooms to observe, demonstrate, encourage, and link teachers with others who can help them. This builds trust, collegiality, and a sense of responsibility for the quality of one's practice.
- *Efforts by professional organizations, intermediate units, or universities to create teacher networks.* These professional collaboratives have great promise. They offer teachers sources of collegial support, information on good practices, and identity as a professional. In some instances, they have been highly effective, and they can involve large numbers of teachers. Subject-matter organizations are natural channels for dissemination of knowledge about teaching and they are committed to the standards that they have developed. These organizations provide a natural basis for building teacher networks in collaboration with universities.

- *Full utilization of all opportunities for teacher growth.* Policymakers should look for essential tasks that could be performed by teachers and would be opportunities for their growth, such as scoring state assessments, mentoring new teachers, developing curriculum, serving on state teams to review schools, or reviewing recertification plans of teachers. When the state department of education asks for more staff, policymakers should ask if the work could be performed by teachers on released time or in summers. The long-term value of such experiences may far outweigh the short-run inconvenience of removing teachers from classrooms. Also policymakers might consider creating "intergovernment" exchanges that would allow teachers to work for a state agency or a university for a year and put state bureaucrats and professors back into classrooms.

- *A pilot program of professional development schools or collaboratives to get higher education involved.* By encouraging teacher training institutions to collaborate with local school districts, getting college faculty back into public school classrooms, and giving much-deserved recognition to master teachers, an investment in professional development schools almost has to be a success at increasing opportunities for teachers. The question is whether they can be cost-effective enough to become an alternative source of new teachers and major providers of professional development or whether they will simply serve as a stimulus for changes in existing institutions. In either case, it is likely that public education will benefit.

- *Use of exemplary local schools as centers for knowledge dissemination and training.* States should make better use of the talents in the system. Successful schools and exemplary teachers should play larger roles in professional development. Why should state agencies or universities hire new employees to develop training opportunities based on what one or more school faculties have successfully designed and implemented? With small amounts of state support, the schools themselves could serve as training sites and their staffs could receive the credit. This happens now but there is no support for it, and the host schools have to absorb the costs or turn interested educators away.

Rethinking Incentives

Many of the state initiatives suggested above would create new incentives for teachers to engage in professional development and strengthen existing ones. They would encourage teachers to take professional development more seriously by improving its quality and accessibility and by strengthening the role of teachers in its planning and operations. The incentive structure does not now lead consistently to the kind of professional development that is needed to reform the schools. As Little has noted, teachers benefit from professional development in a variety of ways, including personal success and satisfaction, professional prestige, career advancement, and increased compensation.[70] However, teachers are also motivated by their desire to be more effective with their children, their interest in subject matter, the pleasure of interacting with colleagues and temporarily escaping from classroom routines, and in some instances the belief that they are making important contributions to their profession.

Recertification requirements may be useful to get all teachers involved in professional development, but they should be combined with other policies that ensure a supply of high-quality opportunities for teachers, balance individual and school interests, and recognize the value of informal learning gained in the workplace. Similarly, awarding salary increments for further education is a powerful incentive, but it can be an expensive, inefficient, and ineffective strategy if it is not harnessed in ways that meet school needs and promote improved practice in the classroom. Broad, unfocused incentives can waste a great deal of time, energy, money, and professional goodwill. As the fuel that drives change, incentives need to be focused on high-quality opportunities that produce the teacher and organizational capacities needed to achieve the learning outcomes sought by reform.

To this end, state policymakers may want to alter the incentive structure by permitting professional service performed by teachers over time to "count" toward recertification, especially if the service involves research or reflection on good practice, learning new content or skills, and/or teaching or mentoring. They may want to use teacher portfolios for recertification, following the work in Connecticut and elsewhere to develop teacher portfolios for initial licensure. They might even consider eliminating the award of CEUs for workshops or in-service experiences that do not meet minimum standards for quality or limiting the award of salary increments to graduate coursework related to teachers' current or future assignments. They might want to expand existing subsidies for advanced study in content or pedagogy for all teachers or for teachers from low-performing schools.

Action is necessary. The current arrangements for the professional development of teachers too often lead to unfocused, fragmented, low-intensity activities that do not produce significant changes in teaching practice. New approaches are needed to support the implementation of more rigorous standards, new curriculum frameworks, authentic assessment, and changes in school organization and governance. School reform requires a teaching force prepared to help students reach high standards of achievement, and preparing such teachers requires development of a culture of reflection and improvement in the schools and regular access to high-quality professional development. Policymakers should be working with educators to determine what actions will ensure more focus, quality, continuity, and effectiveness in their state and in local school districts.

10 The Challenge of Going to Scale

There are approximately 2.4 million teachers working in about 85,000 schools in the United States. If all of these teachers require intensive and continuing professional development to internalize the new content standards, deepen their knowledge of content, revise curricula, and learn new approaches to instruction and assessment, then a massive and costly undertaking is required. Upon closer examination, the problem appears to be even worse. Consider the plight of elementary school teachers in a state engaged in systemic reform. As teachers of all or most of the core subjects they are likely to face new curricula in seven or eight subject areas as well as new assessments and other changes. The new curricula may be vastly different from their formal training in these subjects and require a wholly different pedagogy. Then consider the weak preparation in mathematics and science characteristic of elementary school teachers. It is not easy to even envision the activities needed to prepare teachers for changes of this magnitude, let alone building the capacity to reach all teachers. It seems like an overwhelming task.

And the task will be virtually impossible if policymakers continue to define the problem in terms of how many more in-service days or workshops must be provided. Going to scale requires a fresh mindset and new approaches to professional development. It means using all of the policy levers available to the state—aid to higher education, accreditation, teacher certification and recertification requirements, restructuring teacher compensation—to deliver a consistent message to teachers and to provide appropriate opportunities for them to learn. It means being willing to reallocate resources and redirect existing channels for professional development so that they are supportive of the desired reforms. It means changing the incentive structure for teachers to encourage them to seek the knowledge and skills they need. It means using every occasion—curriculum development, assessment programs, teacher conventions—as an opportunity for professional growth. It means building collaboratives and partnerships to mobilize and coordinate all of the resources—public and private—that could contribute. It means making greater use of low-cost mechanisms such as teacher and school networks, electronic networks, and educational and cable television to reinforce the message, help teachers acquire the necessary skills, and support their efforts to change. Finally, it means adopting a different timeframe and making a long-term commitment to reform based on a coherent set of principles and policies.

Almost all teachers now participate in some form of professional development. The vast majority belong to one or more professional organizations. Teachers can be reached if the natural channels of communication are used and if the message is consistent and delivered repeatedly. Consider the success of the National Writing Project in the 1970s and 1980s in preparing language arts teachers to adopt a new approach to teaching writing. And consider the results of a decade of professional development in California in support of the state's new curricular frameworks, and the influence that the National Council of Teachers of Mathematics is having on the teaching of mathematics through the dissemination and repeated discussion of its standards. These are all examples of serious efforts to go to scale, efforts that mobilized the resources that were available and made long-term commitments to change. There is no one best way; the complexities of school reform and our limited knowledge call for supporting a variety of approaches to professional development.

Preparing all of the teachers to help students reach higher standards may seem like an impossible task, but it is within our reach if we are serious about it and if we are willing to be inventive. Reforms in curriculum and instruction require longer timeframes than are normal for public policy, and it will be difficult to keep policymakers committed and focused on a single agenda through election cycles. Going to scale will require unusual leadership and vision. Indeed, success may depend on the continuity and persistence of leadership, and new institutions may be needed to ensure more stable leadership over time. Reallocation of resources will be politically difficult, especially if longstanding professional development policies such as tuition reimbursement or salary increments based on credit hours are called into question. Reform requires a willingness to abandon old assumptions and biases about teachers and teaching and a willingness to experiment with new ways of spreading knowledge. Policymakers must abandon their remedial and prescriptive approaches to teacher development and shift from trying to control teachers to supporting their efforts to change and respecting their expertise. Patience and perseverance will be needed to persuade local policymakers, teachers, parents, and taxpayers that these changes are needed and are in their interests. There is a marketing problem to be solved as well as a professional development problem. None of these changes in policymaking will be easy, but they are no more difficult than the changes teachers are being asked to make. The task is not beyond our capacity; the goals of improving teaching and learning are not beyond our reach.

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